

SAMPLE SEARCH INITIATED 09:44:43 FILE 'REGISTRY'  
 SAMPLE SCREEN SEARCH COMPLETED - 13 TO ITERATE

100.0% PROCESSED 13 ITERATIONS 6 ANSWERS  
 SEARCH TIME: 00.00.01

FULL FILE PROJECTIONS: ONLINE \*\*COMPLETE\*\*  
 BATCH \*\*COMPLETE\*\*  
 PROJECTED ITERATIONS: 44 TO 476  
 PROJECTED ANSWERS: 6 TO 266

L2 6 SEA SSS SAM L1

L3 11 L2

=> DIS L3 1- IBIB HITSEQ  
 YOU HAVE REQUESTED DATA FROM 11 ANSWERS - CONTINUE? Y/(N):Y  
 THE ESTIMATED COST FOR THIS REQUEST IS 90.09 U.S. DOLLARS  
 DO YOU WANT TO CONTINUE WITH THIS REQUEST? (Y)/N:N  
 REQUEST CANCELED

=> DIS L3 1- TI HIT IBIB IABS  
 YOU HAVE REQUESTED DATA FROM 11 ANSWERS - CONTINUE? Y/(N):Y  
 THE ESTIMATED COST FOR THIS REQUEST IS 33.77 U.S. DOLLARS  
 DO YOU WANT TO CONTINUE WITH THIS REQUEST? (Y)/N:Y

L3 ANSWER 1 OF 11 CAPLUS COPYRIGHT 2006 ACS on STN  
 TI Enzymatic synthesis of the enantiomers of 2-Amino-2-methyl-4-phosphonobutyric acid  
 IT 103-80-0, Phenylacetyl chloride 78405-44-4, 2-Amino-2-methyl-4-phosphonobutanoic acid  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (enzymic synthesis of enantiomers of 2-amino-2-methyl-4-phosphonobutyric acid)  
 ACCESSION NUMBER: 2004:997619 CAPLUS  
 DOCUMENT NUMBER: 142:240508  
 TITLE: Enzymatic synthesis of the enantiomers of 2-Amino-2-methyl-4-phosphonobutyric acid  
 AUTHOR(S): Ragulin, V. V.  
 CORPORATE SOURCE: Institute of Physiologically Active Compounds, Russian Academy of Sciences, Chernogolovka, Russia  
 SOURCE: Russian Journal of General Chemistry (Translation of Zhurnal Obshchey Khimii) (2004), 74(8), 1297-1299  
 CODEN: RJGCEK; ISSN: 1070-3632  
 PUBLISHER: MAIK Nauka/Interperiodica Publishing  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 OTHER SOURCE(S): CASREACT 142:240508  
 ABSTRACT:  
 Enantiomers of (HO)2P(O)CH2CH2CMe(NH2)CO2H were obtained by penicillin amidase-catalyzed hydrolysis of (HO)2P(O)CH2CH2CMe(NHC(O)CH2Ph)CO2H (1), which favors hydrolysis of the (S)-isomer. The carboxamide 1 was prepared from racemic (HO)2P(O)CH2CH2CMe(NH2)CO2H by N- and O-silylation using (Me3Si)2NH followed by N-acylation using BnC(O)Cl and O-deprotection.

REFERENCE COUNT: 14 THERE ARE 14 CITED REFERENCES AVAILABLE FOR THIS

## RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L3 ANSWER 2 OF 11 CAPLUS COPYRIGHT 2006 ACS on STN  
 TI Synthesis of phosphinic acids on the basis of hypophosphites: IV.  
 Synthesis of pseudo- $\gamma$ -glutamylglycine and its enantiomers  
 IT 38056-67-6P 351904-41-1P, DL-[3-Amino-3-(hydroxycarbonyl)propyl] [2-(hydroxycarbonyl)ethyl]phosphinic acid 352359-46-7P 856766-88-6P  
 856766-89-7P  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
 (asym. synthesis of pseudo- $\gamma$ -glutamylglycine phosphinic acid  
 pseudopeptides via penicillamidase catalyzed hydrolysis)  
 ACCESSION NUMBER: 2004:997594 CAPLUS  
 DOCUMENT NUMBER: 143:97611  
 TITLE: Synthesis of phosphinic acids on the basis of  
 hypophosphites: IV. Synthesis of pseudo- $\gamma$ -  
 glutamylglycine and its enantiomers  
 AUTHOR(S): Ragulin, V. V.  
 CORPORATE SOURCE: Institute of Physiologically Active Compounds, Russian  
 Academy of Sciences, Chernogolovka, Russia  
 SOURCE: Russian Journal of General Chemistry (Translation of  
 Zhurnal Obshchei Khimii) (2004), 74(8), 1177-1181  
 CODEN: RJGCEK; ISSN: 1070-3632  
 PUBLISHER: MAIK Nauka/Interperiodica Publishing  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 ABSTRACT:  
 A new method for construction of pseudopeptide mols. was proposed, exemplified by the synthesis of DL-[3-amino-3-(hydroxycarbonyl)propyl] [2-(hydroxycarbonyl)ethyl]phosphinic acid (I) (pseudo- $\gamma$ -glutamylglycine), starting from ammonium hypophosphite. Enzymic synthesis using immobilized penicillamidase allowed preparation of the enantiomers of I.

REFERENCE COUNT: 28 THERE ARE 28 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L3 ANSWER 3 OF 11 CAPLUS COPYRIGHT 2006 ACS on STN  
 TI Synthesis of a novel class of  $\alpha,\alpha$ -disubstituted amino acids:  
 $\alpha$ -alkyl- $\gamma$ -phosphonoglutamic acids  
 IT 663943-11-1P 663943-13-3P 663943-15-5P 663943-16-6P  
 663943-17-7P 663943-19-9P 663943-23-5P  
 RL: SPN (Synthetic preparation); PREP (Preparation)  
 (synthesis of  $\alpha$ -alkyl- $\gamma$ -phosphonoglutamic acids)  
 ACCESSION NUMBER: 2003:509546 CAPLUS  
 DOCUMENT NUMBER: 140:217969  
 TITLE: Synthesis of a novel class of  $\alpha,\alpha$ -  
 disubstituted amino acids:  $\alpha$ -alkyl- $\gamma$ -  
 phosphonoglutamic acids  
 AUTHOR(S): Olczak, Jacek; Olma, Anna; Owczarz, Małgorzata;  
 Krawczyk, Henryk; Zabrocki, Janusz  
 CORPORATE SOURCE: Institute of Organic Chemistry, Technical University  
 of Łódź, Łódź, 90-924, Pol.  
 SOURCE: Peptides 2000, Proceedings of the European Peptide  
 Symposium, 26th, Montpellier, France, Sept. 10-15,  
 2000 (2001), Meeting Date 2000, 379-380. Editor(s):  
 Martinez, Jean; Fehrentz, Jean-Alain. Editions EDK:  
 Paris, Fr.  
 DOCUMENT TYPE: CODEN: 69EDWK; ISBN: 2-84254-048-4  
 LANGUAGE: Conference  
 OTHER SOURCE(S): English  
 ABSTRACT:  
 A symposium report. A novel class of glutamic acid analogs containing both

$\alpha$ -substituent and  $\alpha$ -phosphono functionality was synthesized via alkylation of  $\alpha$ -amino acid derived 2-phenyl-4-alkyl-5(4H)-oxazolones by tri-Et 2-phosphonoacrylate. Subsequent ring opening in acidic conditions releases the  $\alpha$ -carboxylic group and allows for all remaining functionalities to be still protected. The phosphono group could be selectively deprotected by means of trimethylsilyl bromide without affecting other functional groups.

REFERENCE COUNT: 1 THERE ARE 1 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L3 ANSWER 4 OF 11 CAPLUS COPYRIGHT 2006 ACS on STN  
 TI Conservation of the ligand recognition site of metabotropic glutamate receptors during evolution  
 IT 56-86-0, L-Glutamic acid, biological studies 2552-55-8, Ibotenic acid 2686-70-6, L-Homocysteine sulfinate 3106-85-2 14857-77-3, L-Homocysteic acid 52809-07-1, Quisqualic acid 78405-44-4 85148-82-9, S-4-Carboxy-3-hydroxyphenylglycine 111900-31-3, 1S,3S-ACPD 111900-32-4, 1S,3R-ACPD 117857-93-9, L-CCG-I 146669-29-6, RS- $\alpha$ -Methyl-4-carboxyphenylglycine 147782-19-2, DCG-IV 157141-16-7 169209-63-6 169209-65-8,  $\alpha$ -Methyl-4-phosphonophenylglycine 169209-66-9 170984-70-0 170984-72-2 176199-48-7, LY 354740 177188-14-6 279684-29-6D, stereoisomer II  
 RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); BIOL (Biological study)  
 (metabotropic glutamate receptors ligand-binding site conservation during evolution)

ACCESSION NUMBER: 2000:236781 CAPLUS  
 DOCUMENT NUMBER: 133:69122  
 TITLE: Conservation of the ligand recognition site of metabotropic glutamate receptors during evolution  
 AUTHOR(S): Parmentier, M.-L.; Galvez, T.; Acher, F.; Peyre, B.; Pellicciari, R.; Grau, Y.; Bockaert, J.; Pin, J.-P.  
 CORPORATE SOURCE: Centre INSERM-CNRS de Pharmacologie-Endocrinologie, UPR 9023-CNRS, Montpellier, 34094, Fr.  
 SOURCE: Neuropharmacology (2000), 39(7), 1119-1131  
 CODEN: NEPHBW; ISSN: 0028-3908  
 PUBLISHER: Elsevier Science Ltd.  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English

ABSTRACT:  
 Mammalian metabotropic glutamate receptors (mGluRs) are classified into 3 groups based on their sequence similarity and ligand recognition selectivity. Recently, we identified a Drosophila mGluR (DmGluAR) which is about equidistant, phylogenetically, from the 3 mGluR groups. However, both the G-protein coupling selectivity and the pharmacol. profile of DmGluAR, as analyzed with mutated G-proteins and a few compds., look similar to those of mammalian group-II mGluRs. In the present study we carefully examined the pharmacol. profile of DmGluAR, and compared it to those of the rat mGlu1a, mGlu2 and mGlu4a receptors, representative of group-I, II and III resp. The pharmacol. profile of DmGluAR was found to be similar to that of mGlu2R, and only very small differences could be identified at the level of their pharmacophore models. These data strongly suggest that the binding sites of these two receptors are similar. To further document this idea, a 3D model of the mGlu2 binding domain was constructed based on the low sequence similarity with periplasmic amino acid binding proteins, and was used to identify the residues that possibly constitute the ligand recognition pocket. Interestingly, this putative binding pocket was found to be very well conserved between DmGluAR and the mammalian group-II receptors. These data indicate that there has been a strong selective pressure during evolution to maintain the ligand recognition selectivity of mGluRs.

REFERENCE COUNT: 54 THERE ARE 54 CITED REFERENCES AVAILABLE FOR THIS

## RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L3 ANSWER 5 OF 11 CAPLUS COPYRIGHT 2006 ACS on STN  
 TI Structure-function relationships for analogs of L-2-amino-4-phosphonobutanoic acid on the quisqualic acid-sensitive AP4 receptor of the rat hippocampus  
 IT 407-41-0, O-Phospho-L-serine 4378-43-2 5652-28-8 13138-33-5  
 23052-81-5 73913-63-0, O-Phospho-D-serine 74265-32-0  
 78405-44-4 78739-01-2 78944-89-5 79055-67-7 79055-68-8  
 79469-41-3 80902-11-0, dbldag.O-Methylphosphonyl-L-serine 81338-23-0  
 81338-24-1 90632-40-9 90632-41-0 103439-17-4 103439-18-5  
 116139-40-3 133753-34-1 133753-35-2 143152-37-8 143235-21-6  
 143235-22-7 144030-86-4  
 RL: BIOL (Biological study)  
 (quisqualic acid-sensitive AP4 receptor binding by, in CA1 hippocampus, structure in relation to)

ACCESSION NUMBER: 1992:584255 CAPLUS  
 DOCUMENT NUMBER: 117:184255  
 TITLE: Structure-function relationships for analogs of L-2-amino-4-phosphonobutanoic acid on the quisqualic acid-sensitive AP4 receptor of the rat hippocampus  
 AUTHOR(S): Schulte, Marvin K.; Whittemore, Edward R.; Koerner, James F.; Johnson, Rodney L.  
 CORPORATE SOURCE: Med. Sch., Univ. Minnesota, Minneapolis, MN, 55455, USA  
 SOURCE: Brain Research (1992), 582(2), 291-8  
 CODEN: BRREAP; ISSN: 0006-8993  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English

**ABSTRACT:**  
 Hippocampal CA1 pyramidal cell neurons are sensitized to depolarization by L-2-amino-4-phosphonobutanoic acid (L-AP4) following exposure to L-quisqualic acid (QUIS). The authors examined the interaction of 43 structural analogs of L-AP4 with both the 'induction' site and the QUIS-sensitive AP4 site in rat hippocampus. The synthesis of cis- and trans-4-phosphonoxy-L-proline, 3-(RS)-amino-5-phosphopentanoic acid and 2(RS)-amino-5-phenyl-4(RS)-phosphopentanoic acid ( $\gamma$ -benzyl AP4) are described. None of the test compds. interact with the induction site; thus L-QUIS remains the only compound known to induce this effect. However, one compound (L-2-amino-3-(5-tetrazolyl)-propanoic acid (L-aspartate tetrazole) 'pre-blocked' and reversed the effects of QUIS. In addition, the potency of 16 analogs increased more than 4-fold following exposure of slices to L-QUIS. Among these, L-AP4, L-AP5, 2-amino-4-(methylphosphino)butanoic acid (AMPB), and E-1(RS)-amino-3(RS)-phosphonocyclopentanecarboxylic acid (E-cyclopentyl AP4) displayed IC<sub>50</sub> values of less than 0.100 mM after QUIS. The results presented here suggest that the QUIS-sensitive AP4 site requires a spatial configuration of functional groups similar to that present in E-cyclopentyl AP4. The presence of a primary amino group and a phosphorus-containing group (either monoanionic or dianionic) appear to be required, however, a carboxyl group is essential for interaction. The pharmacol. of the QUIS-sensitive AP4 site suggests that it is distinct from other known binding sites for L-AP4 in the central nervous system.

L3 ANSWER 6 OF 11 CAPLUS COPYRIGHT 2006 ACS on STN  
 TI Antagonist activity of methyl-substituted analogs of 2-amino-4-phosphonobutanoic acid in the hippocampal slice  
 AB Four monomethyl-substituted analogs of 2-amino-4-phosphonobutanoic acid (APB) [23052-81-5] an antagonist of excitatory pathways in the central nervous system, were prepared to investigate the steric requirements of the APB receptor. Me groups were incorporated at the amino,  $\alpha$ -,  $\beta$ -, and  $\gamma$ -positions. The  $\beta$ - [95742-06-6] and  $\gamma$ -methyl-substituted analog [79469-40-2] of APB were moderately potent antagonists in excitatory synapses to the hippocampal perforant

path, as judged by extracellular recording techniques, whereas the N-[96249-46-6] and  $\alpha$ -methyl-substituted analog [78405-44-4] had much lower potencies. All of these APB analogs had very low potencies in the Schaffer collateral pathway. The APB receptors in the perforant path displayed more tolerance of methyl-substitution at the  $\beta$ - and  $\gamma$ -positions of APB than at the amino or  $\alpha$ -positions in this system.

IT 78405-44-4 79469-40-2 79469-41-3 95742-06-6

RL: BIOL (Biological study)  
(hippocampus synaptic neurotransmission inhibition by, mol. structure  
in relation to)

ACCESSION NUMBER: 1985:198188 CAPLUS

DOCUMENT NUMBER: 102:198188

TITLE: Antagonist activity of methyl-substituted analogs of  
2-amino-4-phosphonobutanoic acid in the hippocampal  
slice

AUTHOR(S): Crooks, Stephen L.; Freund, Ronald K.; Halsrud, David  
A.; Koerner, James F.; Johnson, Rodney L.

CORPORATE SOURCE: Coll. Pharm., Univ. Minnesota, Minneapolis, MN, 55455,  
USA

SOURCE: Brain Research (1985), 329(1-2), 346-9

CODEN: BRREAP; ISSN: 0006-8993

DOCUMENT TYPE: Journal

LANGUAGE: English

**ABSTRACT:**

Four monomethyl-substituted analogs of 2-amino-4-phosphonobutanoic acid (APB) [23052-81-5] an antagonist of excitatory pathways in the central nervous system, were prepared to investigate the steric requirements of the APB receptor. Me groups were incorporated at the amino,  $\alpha$ -,  $\beta$ -, and  $\gamma$ -positions. The  $\beta$ - [95742-06-6] and  $\gamma$ -methyl-substituted analog [79469-40-2] of APB were moderately potent antagonists in excitatory synapses to the hippocampal perforant path, as judged by extracellular recording techniques, whereas the N-[96249-46-6] and  $\alpha$ -methyl-substituted analog [78405-44-4] had much lower potencies. All of these APB analogs had very low potencies in the Schaffer collateral pathway. The APB receptors in the perforant path displayed more tolerance of methyl-substitution at the  $\beta$ - and  $\gamma$ -positions of APB than at the amino or  $\alpha$ -positions in this system.

L3 ANSWER-7 OF 11 CAPLUS COPYRIGHT 2006 ACS on STN

TI Displacement of DL-[3H]-2-amino-4-phosphonobutanoic acid ([3H]APB) binding with methyl-substituted APB analogs and glutamate agonists

AB The binding of DL-2-amino-4-phosphonobutanoic acid (I) [20263-07-4] to rat brain synaptic membranes was saturable ( $K_d = 6.0 \mu M$ ;  $B_{max} = 380 pmol/mg/protein$ ),  $Ca^{2+}$ - and  $Cl^-$ -dependent, and diminished upon freezing the membrane preparation. The L-isomer of I [23052-81-5], L-glutamic acid [56-86-0], and L-aspartic acid [56-84-8] were more potent as displacers of I binding than the resp. D-isomers. With the exception of kynurenic acid [492-27-3], all the other compds. examined (L- and D-glutamic acid [6893-26-1], L-glutamate tetrazole [65914-80-9], D-2-amino-5-phosphonopentanoic acid [79055-68-8], 2(RS)-amino-2-methyl-4-phosphonobutenoic acid [78405-44-4], DL-2-amino-4-(methylphosphino)butenoic acid [53369-07-6], 2(RS)-amino-3(RS)-methyl-4-phosphonobutanoic acid [95742-06-6], and 2(RS)-amino-4(RS)-phosphonopentanoic acid [79469-40-2]) were more potent as displacers of I binding than as inhibitors of synaptic transmission in the lateral perforant path; however, the L-isomer of I was equipotent in both assays. The ligand specificity in binding to the I site is discussed in relation to the regulation of the lateral perforant pathway and the pharmacol. of glutamate receptors.

IT 56-84-8, biological studies 56-86-0, biological studies 487-79-6  
492-27-3 1783-96-6 6893-26-1 51276-47-2 52809-07-1 65914-80-9

78405-44-4 79055-68-8 79469-40-2 95742-06-6  
 RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); BIOL (Biological study)  
 (aminophosphonobutanoate binding to brain response to)

ACCESSION NUMBER: 1985:197823 CAPLUS  
 DOCUMENT NUMBER: 102:197823  
 TITLE: Displacement of DL-[3H]-2-amino-4-phosphonobutanoic acid ([3H]APB) binding with methyl-substituted APB analogs and glutamate agonists  
 AUTHOR(S): Robinson, Michael B.; Crooks, Stephen L.; Johnson, Rodney L.; Koerner, James F.  
 CORPORATE SOURCE: Med. Sch., Univ. Minnesota, Minneapolis, MN, 55455, USA  
 SOURCE: Biochemistry (1985), 24(10), 2401-5  
 CODEN: BICHAW; ISSN: 0006-2960

DOCUMENT TYPE: Journal  
 LANGUAGE: English

**ABSTRACT:**  
 The binding of DL-2-amino-4-phosphonobutanoic acid (I) [20263-07-4] to rat brain synaptic membranes was saturable ( $K_d = 6.0 \mu M$ ;  $B_{max} = 380 \text{ pmol/mg/protein}$ ),  $Ca^{2+}$ - and  $Cl^-$ -dependent, and diminished upon freezing the membrane preparation. The L-isomer of I [23052-81-5], L-glutamic acid [56-86-0], and L-aspartic acid [56-84-8] were more potent as displacers of I binding than the resp. D-isomers. With the exception of kynurenic acid [492-27-3], all the other compds. examined (L- and D-glutamic acid [6893-26-1], L-glutamate tetrazole [65914-80-9], D-2-amino-5-phosphopentanoic acid [79055-68-8], 2(RS)-amino-2-methyl-4-phosphonobutenoic acid [78405-44-4], DL-2-amino-4-(methylphosphino)butenoic acid [53369-07-6], 2(RS)-amino-3(RS)-methyl-4-phosphonobutanoic acid [95742-06-6], and 2(RS)-amino-4(RS)-phosphonopentanoic acid [79469-40-2]) were more potent as displacers of I binding than as inhibitors of synaptic transmission in the lateral perforant path; however, the L-isomer of I was equipotent in both assays. The ligand specificity in binding to the I site is discussed in relation to the regulation of the lateral perforant pathway and the pharmacol. of glutamate receptors.

L3 ANSWER 8 OF 11 CAPLUS COPYRIGHT 2006 ACS on STN  
 TI Synthesis and properties of phosphinothricin derivatives  
 IT 89916-00-7D, diester

RL: RCT (Reactant); RACT (Reactant or reagent)  
 ... (reaction of, with tribenzylhexahydrotriazine)

ACCESSION NUMBER: 1984:174931 CAPLUS  
 DOCUMENT NUMBER: 100:174931  
 TITLE: Synthesis and properties of phosphinothricin derivatives  
 AUTHOR(S): Maier, Ludwig; Rist, Guenter; Lea, Peter J.  
 CORPORATE SOURCE: Agric. Div., Ciba-Geigy Ltd., Basel, Switz.  
 SOURCE: Phosphorus and Sulfur and the Related Elements (1983), 18(1-2-3), 349-52  
 CODEN: PREEDF; ISSN: 0308-664X

DOCUMENT TYPE: Journal  
 LANGUAGE: English

**ABSTRACT:**  
 Michaelis-Aruzov reaction of  $ClCH_2CH_2P(OEt)_2$  with RX [R = H,  $MeOCH_2$ ,  $HO_2CCH_2$ ,  $HO_2CCH(NH_2)CH_2CH_2$ ,  $PhCH_2$ , p-BrC<sub>6</sub>H<sub>4</sub>CH<sub>2</sub>], followed by treatment with (acylamino)malonates gave phosphinothricin derivs.,  $RP(O)(OH)CH_2CH(NH_2)CO_2H$  (I). I with different substituents on the N atom were obtained by base-catalyzed addition of substituted aminomalonates with Me vinylphosphinates, followed by hydrolysis. Also prepared was the isomer  $MeP(O)(OH)CH_2CH(CO_2H)CH_2NH_2$ . I were purified by silylation with  $(Me_3Si)_2NH$ , followed by distillation and hydrolysis.

L3 ANSWER 9 OF 11 CAPLUS COPYRIGHT 2006 ACS on STN  
 TI Organic phosphorus compounds. 76. Synthesis and properties of phosphinothricin derivatives  
 IT 89222-43-5  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (reactions of)  
 ACCESSION NUMBER: 1984:121198 CAPLUS  
 DOCUMENT NUMBER: 100:121198  
 TITLE: Organic phosphorus compounds. 76. Synthesis and properties of phosphinothricin derivatives  
 AUTHOR(S): Maier, Ludwig; Lea, Peter J.  
 CORPORATE SOURCE: Agric. Div., Ciba-Geigy Ltd., Basel, Switz.  
 SOURCE: Phosphorus and Sulfur and the Related Elements (1983), 17(1), 1-19  
 CODEN: PREEDF; ISSN: 0308-664X  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 ABSTRACT:  
 Six phosphinothricin derivs. -RP(O)(OH)CH<sub>2</sub>CH<sub>2</sub>CH(NH<sub>2</sub>)CO<sub>2</sub>H (R = substituted benzyl, HO<sub>2</sub>CCH<sub>2</sub>, MeOCH<sub>2</sub>) were prepared by Michaelis-Arbuzov reaction of Cl(CH<sub>2</sub>)<sub>2</sub>P(OEt)<sub>2</sub> with RX (same R; X = halide) to give RP(O)(OEt)CH<sub>2</sub>CH<sub>2</sub>Cl, dehydrochlorination of the last with Et<sub>3</sub>N to give vinylphosphinates RP(O)(OEt)CH:CH<sub>2</sub>, treatment of the last with AcNHCH(CO<sub>2</sub>Et)<sub>2</sub>, followed by hydrolysis in concentrated HCl. Also, seven MeP(O)(OH)CH<sub>2</sub>CH<sub>2</sub>CH(NRR<sub>1</sub>)CO<sub>2</sub>H [R = Me, 3,4-Cl<sub>2</sub>MeC<sub>6</sub>H<sub>3</sub>, R<sub>1</sub> = CH<sub>2</sub>Ph, H; RR<sub>1</sub> = (CH<sub>2</sub>)<sub>n</sub> (n = 4, 5, 6), (CH<sub>2</sub>)<sub>2</sub>CHMe(CH<sub>2</sub>)<sub>2</sub>, (CH<sub>2</sub>)<sub>2</sub>O(CH<sub>2</sub>)<sub>2</sub>] were prepared by base-catalyzed addition of MeP(O)(OMe)CH:CH<sub>2</sub> with RNR<sub>1</sub>CH(CO<sub>2</sub>Et)<sub>2</sub>, followed by hydrolysis. The activity of some of the phosphinothricin analogs as glutamine synthetase inhibitors and contact herbicides is reported.

L3 ANSWER 10 OF 11 CAPLUS COPYRIGHT 2006 ACS on STN  
 TI Inhibition of rat liver glutamine synthetase by phosphonic analogs of glutamic acid  
 IT 56-85-9D, phosphonic analogs 56-86-0D, phosphonic analogs 6323-99-5  
 18865-31-1 51276-47-2 65482-86-2 73870-68-5 73870-69-6  
 78405-44-4 78405-48-8 78432-42-5 81746-56-7 115692-97-2  
 153605-27-7  
 RL: BIOL (Biological study)  
 (glutamine synthetase inhibition by)  
 ACCESSION NUMBER: 1981:457044 CAPLUS  
 DOCUMENT NUMBER: 95:57044  
 TITLE: Inhibition of rat liver glutamine synthetase by phosphonic analogs of glutamic acid  
 AUTHOR(S): Lejczak, B.; Starzem ska, H.; Mastalerz, P.  
 CORPORATE SOURCE: Inst. Org. Phys. Chem., Tech. Univ., Wroclaw,  
 PL-50370, Pol.  
 SOURCE: Experientia (1981), 37(5), 461-2  
 CODEN: EXPEAM; ISSN: 0014-4754  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 ABSTRACT:  
 Analogs of glutamic acid,  $\alpha$ -methylglutamic acid, and glutamine in which the  $\alpha$ - or  $\gamma$ -COOH groups are replaced by PO<sub>3</sub>H<sub>2</sub> or P(O)(OH)<sub>3</sub>OH groups competitively inhibit rat liver glutamine synthetase. The Ki values are comparable to or lower than Km for L-glutamate.

L3 ANSWER 11 OF 11 CAPLUS COPYRIGHT 2006 ACS on STN  
 TI Cytostatic activity in vitro of cycloleucine, aspartic acid and glutamic acid phosphonic analogs  
 IT 52-52-8 5652-28-8 5652-40-4 6323-99-5 18865-31-1 51276-47-2  
 52112-12-6 61341-13-7 61341-14-8 67398-11-2 67550-64-5

67550-65-6 67550-68-9 67550-69-0 73870-68-5 73870-71-0

75878-71-6 78405-44-4

RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); BIOL (Biological study)  
 (cytostatic activity of)

ACCESSION NUMBER: 1981:140 CAPLUS

DOCUMENT NUMBER: 94:140

TITLE: Cytostatic activity in vitro of cycloleucine, aspartic acid and glutamic acid phosphonic analogs

AUTHOR(S): Dus, Danuta; Salwa, Jan; Mastalerz, Przemyslaw

CORPORATE SOURCE: Inst. Immunol. Exp. Therapy, Polish Acad. Sci., Wroclaw, Pol.

SOURCE: Archivum Immunologiae et Therapiae Experimentalis (1980), 28(3), 433-8

CODEN: AITEAT; ISSN: 0004-069X

DOCUMENT TYPE: Journal

LANGUAGE: English

## ABSTRACT:

Cytostatic activity of 18-new phosphonic acid derivative of cycloleucine, aspartic acid, and glutamic acid was tested against human KB and mouse L1210s leukemia cell lines in vitro. Four of the tested compds. revealed their cytostatic activity at 10 µg/mL.

## =&gt; FIL REGISTRY

COST IN U.S. DOLLARS

SINCE FILE	TOTAL
ENTRY	SESSION

FULL ESTIMATED COST

34.69 35.80

DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)

SINCE FILE	TOTAL
ENTRY	SESSION

CA SUBSCRIBER PRICE

-8.25 -8.25

FILE 'REGISTRY' ENTERED AT 09:46:06 ON 18 JUL 2006

USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.

PLEASE SEE "HELP USAGETERMS" FOR DETAILS.

COPYRIGHT (C) 2006 American Chemical Society (ACS)

Property values tagged with IC are from the ZIC/VINITI data file provided by InfoChem.

STRUCTURE FILE UPDATES: 17 JUL 2006 HIGHEST RN 893880-40-5

DICTIONARY FILE UPDATES: 17 JUL 2006 HIGHEST RN 893880-40-5

New CAS Information Use Policies, enter HELP USAGETERMS for details.

TSCA INFORMATION NOW CURRENT THROUGH January 6, 2006

Please note that search-term pricing does apply when conducting SmartSELECT searches.

REGISTRY includes numerically searchable data for experimental and predicted properties as well as tags indicating availability of experimental property data in the original document. For information on property searching in REGISTRY, refer to:

<http://www.cas.org/ONLINE/UG/regprops.html>

=&gt; DIS L2 1 RN SAM

'SAM' IS NOT A VALID FORMAT FOR FILE 'REGISTRY'

The following are valid formats:

Substance information can be displayed by requesting individual fields or predefined formats. The predefined substance formats are: (RN = CAS Registry Number)

```

REG - RN
SAM - Index Name, MF, and structure - no RN
FIDE - All substance data, except sequence data
IDE - FIDE, but only 50 names
SQIDE - IDE, plus sequence data
SQIDE3 - Same as SQIDE, but 3-letter amino acid codes are used
SQD - Protein sequence data, includes RN
SQD3 - Same as SQD, but 3-letter amino acid codes are used
SQN - Protein sequence name information, includes RN

CALC - Table of calculated properties
EPROP - Table of experimental properties
PROP - EPROP and CALC

```

Any CA File format may be combined with any substance format to obtain CA references citing the substance. The substance formats must be cited first. The CA File predefined formats are:

```

ABS -- Abstract
APPS -- Application and Priority Information
BIB -- CA Accession Number, plus Bibliographic Data
CAN -- CA Accession Number
CBIB -- CA Accession Number, plus Bibliographic Data (compressed)
IND -- Index Data
IPC -- International Patent Classification
PATS -- PI, SO
STD -- BIB, IPC, and NCL

IABS -- ABS, indented, with text labels
IBIB -- BIB, indented, with text labels
ISTD -- STD format, indented

OBIB ----- AN, plus Bibliographic Data (original)
OIBIB ----- OBIB, indented with text labels

SBIB ----- BIB, no citations
SIBIB ----- IBIB, no citations

```

The ALL format gives FIDE BIB ABS IND RE, plus sequence data when it is available.

The MAX format is the same as ALL.

The IALL format is the same as ALL with BIB ABS and IND indented, with text labels.

For additional information, please consult the following help messages:

```

HELP DFIELDS -- To see a complete list of individual display fields.
HELP FORMATS -- To see detailed descriptions of the predefined formats.
ENTER DISPLAY FORMAT (IDE):END

```

```
=> DIS L2 1- RN SAM
'SAM' IS NOT A VALID FORMAT FOR FILE 'REGISTRY'
```

The following are valid formats:

Substance information can be displayed by requesting individual fields or predefined formats. The predefined substance formats

are: (RN = CAS Registry Number)

REG	- RN
SAM	- Index Name, MF, and structure - no RN
FIDE	- All substance data, except sequence data
IDE	- FIDE, but only 50 names
SQIDE	- IDE, plus sequence data
SQIDE3	- Same as SQIDE, but 3-letter amino acid codes are used
SQD	- Protein sequence data, includes RN
SQD3	- Same as SQD, but 3-letter amino acid codes are used
SQN	- Protein sequence name information, includes RN
CALC	- Table of calculated properties
EPROP	- Table of experimental properties
PROP	- EPROP and CALC

Any CA File format may be combined with any substance format to obtain CA references citing the substance. The substance formats must be cited first. The CA File predefined formats are:

ABS	-- Abstract
APPS	-- Application and Priority Information
BIB	-- CA Accession Number, plus Bibliographic Data
CAN	-- CA Accession Number
CBIB	-- CA Accession Number, plus Bibliographic Data (compressed)
IND	-- Index Data
IPC	-- International Patent Classification
PATS	-- PI, SO
STD	-- BIB, IPC, and NCL
IABS	-- ABS, indented, with text labels
IBIB	-- BIB, indented, with text labels
ISTD	-- STD format, indented
OBIB	----- AN, plus Bibliographic Data (original)
OIBIB	----- OBIB, indented with text labels
SBIB	----- BIB, no citations
SIBIB	----- IBIB, no citations

The ALL format gives FIDE BIB ABS IND RE, plus sequence data when it is available.

The MAX format is the same as ALL.

The IALL format is the same as ALL with BIB ABS and IND indented, with text labels.

For additional information, please consult the following help messages:

HELP DFIELDS -- To see a complete list of individual display fields.  
 HELP FORMATS -- To see detailed descriptions of the predefined formats.  
 ENTER DISPLAY FORMAT (IDE):END

	SINCE FILE	TOTAL
	ENTRY	SESSION
COST IN U.S. DOLLARS		
FULL ESTIMATED COST	0.88	36.68
DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)	SINCE FILE	TOTAL
CA SUBSCRIBER PRICE	ENTRY	SESSION
	0.00	-8.25

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 PLEASE SEE "HELP USAGETERMS" FOR DETAILS.  
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FILE COVERS 1907 - 18 Jul 2006 VOL 145 ISS 4  
 FILE LAST UPDATED: 17 Jul 2006 (20060717/ED)

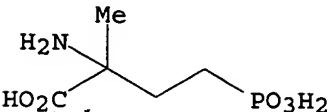
Effective October 17, 2005, revised CAS Information Use Policies apply. They are available for your review at:

<http://www.cas.org/infopolicy.html>

=> DIS L3 1 HITSEQ

THE ESTIMATED COST FOR THIS REQUEST IS 7.05 U.S. DOLLARS  
 DO YOU WANT TO CONTINUE WITH THIS REQUEST? (Y)/N:Y

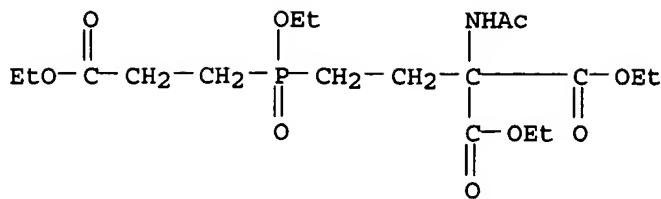
L3 ANSWER 1 OF 11 CAPLUS COPYRIGHT 2006 ACS on STN  
 IT 78405-44-4, 2-Amino-2-methyl-4-phosphonobutanoic acid  
     RL: RCT (Reactant); RACT (Reactant or reagent)  
       (enzymic synthesis of enantiomers of 2-amino-2-methyl-4-  
       phosphonobutyric acid)  
 RN 78405-44-4 CAPLUS  
 CN Isovaline, 4-phosphono- (9CI) (CA INDEX NAME)



=> DIS L3 2 HITSEQ

THE ESTIMATED COST FOR THIS REQUEST IS 7.05 U.S. DOLLARS  
 DO YOU WANT TO CONTINUE WITH THIS REQUEST? (Y)/N:Y

L3 ANSWER 2 OF 11 CAPLUS COPYRIGHT 2006 ACS on STN  
 IT 856766-89-7P  
     RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT  
       (Reactant or reagent)  
       (asym. synthesis of pseudo- $\gamma$ -glutamylglycine phosphinic acid  
       pseudopeptides via penicillamidase catalyzed hydrolysis)  
 RN 856766-89-7 CAPLUS  
 CN Propanedioic acid, (acetylamino)[2-[ethoxy(3-ethoxy-3-  
   oxopropyl)phosphinyl]ethyl]-, diethyl ester (9CI) (CA INDEX NAME)



=> DIS L3 3 HITSEQ

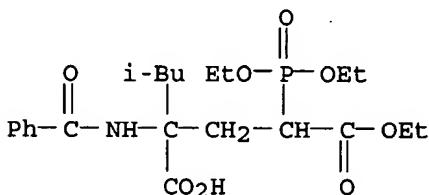
THE ESTIMATED COST FOR THIS REQUEST IS 7.05 U.S. DOLLARS  
DO YOU WANT TO CONTINUE WITH THIS REQUEST? (Y)/N:Y

L3 ANSWER 3 OF 11 CAPLUS COPYRIGHT 2006 ACS on STN  
IT 663943-17-7P

RL: SPN (Synthetic preparation); PREP (Preparation)  
(synthesis of  $\alpha$ -alkyl- $\gamma$ -phosphonoglutamic acids)

RN 663943-17-7 CAPLUS

CN Glutamic acid, N-benzoyl-4-(diethoxyphosphinyl)-2-(2-methylpropyl)-,  
5-ethyl ester (9CI) (CA INDEX NAME)



=> DIS L3 4 HITSEQ

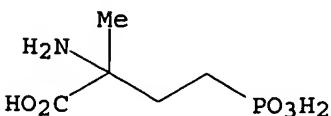
THE ESTIMATED COST FOR THIS REQUEST IS 7.05 U.S. DOLLARS  
DO YOU WANT TO CONTINUE WITH THIS REQUEST? (Y)/N:Y

L3 ANSWER 4 OF 11 CAPLUS COPYRIGHT 2006 ACS on STN  
IT 78405-44-4

RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); BIOL (Biological study)  
(metabotropic glutamate receptors ligand-binding site conservation during evolution)

RN 78405-44-4 CAPLUS

CN Isovaline, 4-phosphono- (9CI) (CA INDEX NAME)



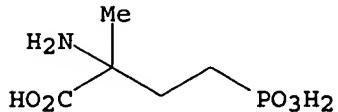
=> DIS L3 5 HITSEQ

THE ESTIMATED COST FOR THIS REQUEST IS 7.05 U.S. DOLLARS  
DO YOU WANT TO CONTINUE WITH THIS REQUEST? (Y)/N:Y

L3 ANSWER 5 OF 11 CAPLUS COPYRIGHT 2006 ACS on STN

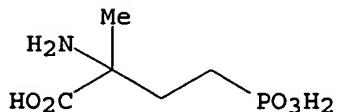
229

IT 78405-44-4  
RL: BIOL (Biological study)  
(quisqualic acid-sensitive AP4 receptor binding by, in CA1 hippocampus,  
structure in relation to)  
RN 78405-44-4 CAPLUS  
CN Isovaline, 4-phosphono- (9CI) (CA INDEX NAME)



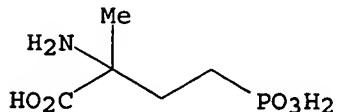
=> DIS L3 6 HITSEQ  
THE ESTIMATED COST FOR THIS REQUEST IS 7.05 U.S. DOLLARS  
DO YOU WANT TO CONTINUE WITH THIS REQUEST? (Y)/N:Y

L3 ANSWER 6 OF 11 CAPLUS COPYRIGHT 2006 ACS on STN  
IT 78405-44-4  
RL: BIOL (Biological study)  
(hippocampus synaptic neurotransmission inhibition by, mol. structure  
in relation to)  
RN 78405-44-4 CAPLUS  
CN Isovaline, 4-phosphono- (9CI) (CA INDEX NAME)



=> DIS L3 7 HITSEQ  
THE ESTIMATED COST FOR THIS REQUEST IS 7.05 U.S. DOLLARS  
DO YOU WANT TO CONTINUE WITH THIS REQUEST? (Y)/N:Y

L3 ANSWER 7 OF 11 CAPLUS COPYRIGHT 2006 ACS on STN  
IT 78405-44-4  
RL: BAC (Biological activity or effector, except adverse); BSU (Biological  
study, unclassified); BIOL (Biological study)  
(aminophosphonobutanoate binding to brain response to)  
RN 78405-44-4 CAPLUS  
CN Isovaline, 4-phosphono- (9CI) (CA INDEX NAME)

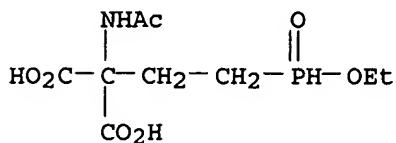


=> DIS L3 8 HITSEQ  
THE ESTIMATED COST FOR THIS REQUEST IS 7.05 U.S. DOLLARS  
DO YOU WANT TO CONTINUE WITH THIS REQUEST? (Y)/N:Y

L3 ANSWER 8 OF 11 CAPLUS COPYRIGHT 2006 ACS on STN

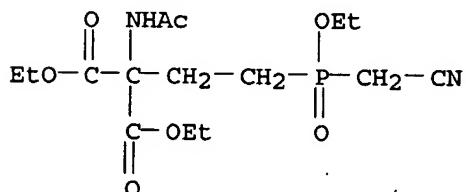
229

IT 89916-00-7D, diester  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(reaction of, with tribenzylhexahydrotriazine)  
RN 89916-00-7 CAPLUS  
CN Propanedioic acid, (acetylamino) [2-(ethoxyphosphinyl)ethyl] - (9CI) (CA INDEX NAME)



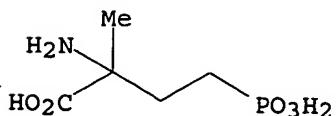
=> DIS L3 9 HITSEQ  
THE ESTIMATED COST FOR THIS REQUEST IS 7.05 U.S. DOLLARS  
DO YOU WANT TO CONTINUE WITH THIS REQUEST? (Y)/N:Y

L3 ANSWER 9 OF 11 CAPLUS COPYRIGHT 2006 ACS on STN  
IT 89222-43-5  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(reactions of)  
RN 89222-43-5 CAPLUS  
CN Propanedioic acid, (acetylamino) [2-[(cyanomethyl)ethoxyphosphinyl]ethyl] - , diethyl ester (9CI) (CA INDEX NAME)



=> DIS L3 10 HITSEQ  
THE ESTIMATED COST FOR THIS REQUEST IS 7.05 U.S. DOLLARS  
DO YOU WANT TO CONTINUE WITH THIS REQUEST? (Y)/N:Y

L3 ANSWER 10 OF 11 CAPLUS COPYRIGHT 2006 ACS on STN  
IT 78405-44-4  
RL: BIOL (Biological study)  
(glutamine synthetase inhibition by)  
RN 78405-44-4 CAPLUS  
CN Isovaline, 4-phosphono- (9CI) (CA INDEX NAME)



=> DIS L3 11 HITSEQ  
THE ESTIMATED COST FOR THIS REQUEST IS 7.05 U.S. DOLLARS

229

DO YOU WANT TO CONTINUE WITH THIS REQUEST? (Y)/N:Y

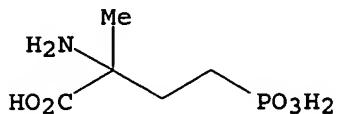
L3 ANSWER 11 OF 11 CAPLUS COPYRIGHT 2006 ACS on STN

IT 78405-44-4

RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); BIOL (Biological study)  
(cytostatic activity of)

RN 78405-44-4 CAPLUS

CN Isovaline, 4-phosphono- (9CI) (CA INDEX NAME)



=> logoff

ALL L# QUERIES AND ANSWER SETS ARE DELETED AT LOGOFF

LOGOFF? (Y)/N/HOLD:Y

COST IN U.S. DOLLARS

SINCE FILE

ENTRY

TOTAL

SESSION

FULL ESTIMATED COST

26.99

63.67

DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)

SINCE FILE

ENTRY

TOTAL

SESSION

CA SUBSCRIBER PRICE

0.00

-8.25

STN INTERNATIONAL LOGOFF AT 09:48:28 ON 18 JUL 2006

Dialog level 05.12.03D

Last logoff: 12jul06 16:08:22  
Logon file001 17jul06 15:25:21

\*\*\* ANNOUNCEMENTS \*\*\*  
\*\*\*

NEW FILES RELEASED

\*\*\*Trademarkscan - South Korea (File 655)  
\*\*\*Regulatory Affairs Journals (File 183)  
\*\*\*Index Chemicus (File 302)  
\*\*\*Inspec (File 202)

RESUMED UPDATING

\*\*\*File 141, Reader's Guide Abstracts  
\*\*\*

RELOADS COMPLETED

\*\*\*File 516, D&B--Dun's Market Identifiers  
\*\*\*File 523, D&B European Dun's Market Identifiers  
\*\*\*File 531, American Business Directory  
\*\*\* MEDLINE has been reloaded with the 2006 MeSH (Files 154 & 155)  
\*\*\* The 2005 reload of the CLAIMS files (Files 340, 341, 942)  
is now available online.

\*\*\*

DATABASES REMOVED

\*\*\*File 196, FINDEX  
\*\*\*File 468, Public Opinion Online (POLL)

Chemical Structure Searching now available in Prous Science Drug Data Report (F452), Prous Science Drugs of the Future (F453), IMS R&D Focus (F445/955), Pharmaprojects (F128/928), Beilstein Facts (F390), Derwent Chemistry Resource (F355) and Index Chemicus (File 302).

\*\*\*

>>>For the latest news about Dialog products, services, content<<  
>>>and events, please visit What's New from Dialog at <<  
>>><http://www.dialog.com/whatsnew/>. You can find news about<<  
>>>a specific database by entering HELP NEWS <file number>. <<  
\* \* \*

File 1:ERIC 1966-2006/June  
(c) format only 2006 Dialog

Set Items Description  
--- ----- -----

Cost is in DialUnits

?

Terminal set to DLINK

? b 5

17jul06 15:25:49 User291213 Session D64.1  
\$0.39 0.112 DialUnits File1  
\$0.39 Estimated cost File1  
\$0.11 TELNET  
\$0.50 Estimated cost this search  
\$0.50 Estimated total session cost 0.112 DialUnits

File 5:Biosis Previews(R) 1969-2006/Jul W2  
(c) 2006 The Thomson Corporation

Set Items Description  
--- ----- -----

```
? s cyclodextrin?(S) (tocopherol or (vitamin(W)E)
>>>Unmatched parentheses
? s cyclodextrin?(S) (tocopherol or (vitamin(W)E))
    9950 CYCLODEXTRIN?
    16552 TOCOPHEROL
    122584 VITAMIN
    766074 E
    24086 VITAMIN(W)E
S1      20 CYCLODEXTRIN?(S) (TOCOPHEROL OR (VITAMIN(W)E))
? rd
S2      20 RD (unique items)
? t s2/free/all
```

**2/6/1**  
0015320770 BIOSIS NO.: 200510015270  
**Solubilization of tocopherols by using cyclization reaction with cyclodextrin glucanotransferase**  
2005

**2/6/2**  
0015211361 BIOSIS NO.: 200500117539  
**Xanthophylls and alpha-tocopherol decrease UVB-induced lipid peroxidation and stress signaling in human lens epithelial cells**  
2004

**2/6/3**  
0014949525 BIOSIS NO.: 200400320282  
**Uptake and transport of high-density lipoprotein (HDL) and HDL-associated alpha-tocopherol by an in vitro blood-brain barrier model**  
2004

**2/6/4**  
0014914408 BIOSIS NO.: 200400285165  
**Lutein and zeaxanthin decrease UVB-induced stress signaling in human lens epithelial cells**  
2004

**2/6/5**  
0014807806 BIOSIS NO.: 200400178563  
**Solubilizing excipients in oral and injectable formulations.**  
2004

**2/6/6**  
0014614795 BIOSIS NO.: 200300583514  
**Antioxidant activities of natural vitamin E formulations.**  
2003

**2/6/7**  
0014424517 BIOSIS NO.: 200300381794  
**Use of cyclodextrin as a vehicle for loading human lens epithelial and human ciliary body cells with xanthophylls and alpha- tocopherol.**  
2003

2/6/8  
0014358463 BIOSIS NO.: 200300317182  
**Action of pyrethrum-based formulations against grain weevils.**  
2003

2/6/9  
0013655657 BIOSIS NO.: 200200249168  
**Development and validation of oxygen radical absorbance capacity assay for lipophilic antioxidants using randomly methylated beta-cyclodextrin as the solubility enhancer**  
2002

2/6/10  
0013568114 BIOSIS NO.: 200200161625  
**Modulation of human lymphocyte proliferative response with aging**  
2002

2/6/11  
0012678971 BIOSIS NO.: 200000397284  
**Oxidation of d-alpha-tocopherol in aqueous solution. Formation of colored products**  
1999

2/6/12  
0012530379 BIOSIS NO.: 200000248692  
**Kinetic behavior of three preparations of alpha-tocopherol after oral administration to postpubertal heifers**  
2000

2/6/13  
0012330032 BIOSIS NO.: 200000048345  
**Cis/trans isomers of tocotrienols: Occurrence and bioavailability**  
1999

2/6/14  
0011634276 BIOSIS NO.: 199800428523  
**Oxidative damage induced by the fullerene C60 on photosensitization in rat liver microsomes**  
1998

2/6/15  
0011466418 BIOSIS NO.: 199800260665  
**Neurotoxicity of cholesterol oxides on cultured cerebellar granule cells**  
1998

2/6/16  
0011441586 BIOSIS NO.: 199800235833  
**Neurotoxicity of 25-OH-cholesterol on sympathetic neurons**  
1998

2/6/17

0011344881 BIOSIS NO.: 199800139128  
Neurotoxicity of 25-OH-cholesterol on NGF-differentiated PC12 cells  
1998

2/6/18  
0011175699 BIOSIS NO.: 199799809759  
Comparison of the separation of fat-soluble vitamins using  
beta-cyclodextrins in high-performance liquid chromatography and micellar  
electrokinetic chromatography  
1997

2/6/19  
0009156985 BIOSIS NO.: 199497178270  
Bitterness-suppressive formulation of benexate hydrochloride betadex  
prepared by hot melt granulation  
1993

2/6/20  
0006780276 BIOSIS NO.: 198988095391  
SUPPRESSION OF FISHY ODOR IN SARDINE MEAT  
1989  
? s s2 and skin  
    20 S2  
    250312 SKIN  
    S3     0 S2 AND SKIN  
? s s2 and (derma\$ or sunscreen)  
    20 S2  
    0 DERMA\$  
    1754 SUNSCREEN  
    S4     0 S2 AND (DERMA\$ OR SUNSCREEN)  
? sf all  
>>>SELECT FILES not supported.  
? b 411  
    17Jul06 15:29:56 User291213 Session D64.2  
    \$5.80    0.982 DialUnits File5  
        \$0.00 20 Type(s) in Format 6  
        \$0.00 20 Types  
    \$5.80 Estimated cost File5  
    \$1.33 TELNET  
    \$7.13 Estimated cost this search  
    \$7.63 Estimated total session cost 1.095 DialUnits

File 411:DIALINDEX(R)

DIALINDEX(R)  
(c) 2006 Dialog

\*\*\* DIALINDEX search results display in an abbreviated \*\*\*  
\*\*\* format unless you enter the SET DETAIL ON command. \*\*\*  
? sf all  
    You have 562 files in your file list.  
    (To see banners, use SHOW FILES command)  
? s cyclodextrin?(S) (tocopherol or (vitamin(W)E))

Your SELECT statement is:  
    s cyclodextrin?(S) (tocopherol or (vitamin(W)E))

Items	File
-----	-----
20	5: Biosis Previews(R)_1969-2006/Jul W2
1	7: Social SciSearch(R)_1972-2006/Jul W2
1	8: Ei Compendex(R)_1970-2006/Jul W2
4	9: Business & Industry(R)_Jul/1994-2006/Jul 14
2	10: AGRICOLA_70-2006/May
1	13: BAMP_2006/Jul W2
3	15: ABI/Inform(R)_1971-2006/Jul 17
6	16: Gale Group PRÖMT(R)_1990-2006/Jul 14
3	20: Dialog Global Reporter_1997-2006/Jul 17
4	24: CSA Life Sciences Abstracts_1966-2006/May
29	34: SciSearch(R) Cited Ref Sci_1990-2006/Jul W2
1	35: Dissertation Abs Online_1861-2006/Jun
7	50: CAB Abstracts_1972-2006/Jun
8	51: Food Sci.&Tech.Abs_1969-2006/Jul W2
10	53: FOODLINE(R): Science_1972-2006/Jul 12
Examined 50 files	
1	67: World Textiles_1968-2006/Jul
10	71: ELSEVIER BIOBASE_1994-2006/Jul W3
18	73: EMBASE_1974-2006/Jul 17
4	74: Int.Pharm.Abs_1970-2006/May B2
1	79: Foods Adlibra(TM)_1974-2002/Apr
1	88: Gale Group Business A.R.T.S._1976-2006/Jul 05
12	94: JICST-EPlus_1985-2006/Apr W3
4	95: TEMA-Technology & Management_1989-2006/Jul W3
2	112: UBM Industry News_1998-2004/Jan 27
Examined 100 files	
1	135: NewsRx Weekly Reports_1995-2006/Jul W2
12	144: Pascal_1973-2006/Jun W4
3	148: Gale Group Trade & Industry DB_1976-2006/Jul 14
16	155: MEDLINE(R)_1950-2006/Jul 17
8	156: ToxFile_1965-2006/Jul W2
3	159: Cancerlit_1975-2002/Oct
3	162: Global Health_1983-2006/Jun
1	172: EMBASE Alert_2006/Jul 17
2	180: Federal Register_1985-2006/Jul 14
1	203: AGRIS_1974-2006/Mar
Examined 150 files	
3	240: PAPERCHEM_1967-2006/Jul W3
1	248: PIRA_1975-2006/Jun W4
1	266: FEDRIP_2005/Dec
2	280: ONTAP_Derwent World Patents Index
Examined 200 files	
1	285: BioBusiness(R)_1985-1998/Aug W1
1	302: INDEX CHEMICUS_1993-200628
2	305: Analytical Abstracts_1980-2006/Jul W1
1	315: ChemEng & Biotec Abs_1970-2006/Jun
1	319: Chem Bus NewsBase_1984-2006/Jul 17
70	324: German Patents Fulltext_1967-200627
1	331: Derwent WPI First View UD=200645
32	340: CLAIMS(R)/US Patent_1950-06/Jul 13
10	342: Derwent Patents Citation Indx_1978-05/200641
2	344: Chinese Patents Abs_Jan 1985-2006/Jan
5	345: Inpadoc/Fam.& Legal Stat_1968-2006/UD=200628
38	347: JAPIO_Dec 1976-2005/Dec(Updated 060404)
108	348: EUROPEAN PATENTS_1978-2006/_200628
489	349: PCT FULLTEXT_1979-2006/UB=20060713,UT=20060706
1	355: Derwent Chemistry Resource UD=200642
3	357: Derwent Biotech Res._1982-2006/Jul W2
1	358: Current BioTech Abs_1983-2006/Jan

Examined 250 files  
20 377: Derwent Drug File\_1983-2006/Jun W3  
2 390: Beilstein Abstracts\_2006/Q2  
2 391: Beilstein Reactions\_2006/Q2  
4 393: Beilstein Abstracts\_2006/Q2  
7 398: Chemsearch\_1957-2006/Jun  
37 399: CA SEARCH(R)\_1967-2006/UD=14504  
30 440: Current Contents Search(R)\_1990-2006/Jul 17  
1 446: IMS-New Product Focus\_1982-2006/May  
Examined 300 files  
1 484: Periodical Abs Plustext\_1986-2006/Jul W2  
Examined 350 files  
3 570: Gale Group MARS(R)\_1984-2006/Jul 14  
Examined 400 files  
2 613: PR Newswire\_1999-2006/Jul 17  
1 619: Asia Intelligence Wire\_1995-2006/Jul 16  
3 636: Gale Group Newsletter DB(TM)\_1987-2006/Jul 14

Processing  
1268 654: US Pat.Full.\_1976-2006/Jul 13

Examined 450 files

Examined 500 files

3 763: Freedonia Market Res.\_1990-2006/Jul  
2 764: BCC Market Research\_1989-2006/Jul  
2 766: (R)Kalorama Info Market Res.\_1993-2000/Aug

Examined 550 files

1 990: NewsRoom Current\_Mar 1 -2006/Jul 17  
4 992: NewsRoom 2005  
2 993: NewsRoom 2004  
3 996: NewsRoom 2000-2001

76 files have one or more items; file list includes 562 files.

? b 34 348 349 324 654  
17jul06 15:35:40 User291213 Session D64.3  
\$36.24 13.674 DialUnits File411  
\$36.24 Estimated cost File411  
\$1.60 TELNET  
\$37.84 Estimated cost this search  
\$45.47 Estimated total session cost 14.769 DialUnits

SYSTEM:OS - DIALOG OneSearch  
File 34:SciSearch(R) Cited Ref Sci 1990-2006/Jul W2  
(c) 2006 The Thomson Corp  
File 348:EUROPEAN PATENTS 1978-2006/ 200628  
(c) 2006 European Patent Office  
**\*File 348: For important information about IPCR/8 and forthcoming changes to the IC= index, see HELP NEWSIPCR.**  
File 349:PCT FULLTEXT 1979-2006/UB=20060713,UT=20060706  
(c) 2006 WIPO/Univentio  
**\*File 349: For important information about IPCR/8 and forthcoming changes to the IC= index, see HELP NEWSIPCR.**  
File 324:German Patents Fulltext 1967-200627  
(c) 2006 Univentio  
**\*File 324: For important information about IPCR/8 and forthcoming changes to the IC= index, see HELP NEWS IPCR.**  
File 654:US Pat.Full. 1976-2006/Jul 13  
(c) Format only 2006 Dialog  
**\*File 654: IPCR/8 classification codes now searchable in 2006 records.**  
For information about IC= index changes, see HELP NEWSIPCR.

Set	Items	Description
---	-----	
? s cyclodextrin?(S)(tocopherol or (vitamin(W)E))		
Processing		
Processing		
60796	CYCLODEXTRIN?	
50305	TOCOPHEROL	
180876	VITAMIN	
6614735	E	
59100	VITAMIN(W)E	
S1 1964	CYCLODEXTRIN?(S)(TOCOPHEROL OR (VITAMIN(W)E))	
? s s1 and (skin or derm\$ or sunscreen)		
1964 S1		
661253	SKIN	
0	DERM\$	
12620	SUNSCREEN	
S2 1447	S1 AND (SKIN OR DERM\$ OR SUNSCREEN)	
? s (cyclodextrin?(S)(tocopherol or (vitamin(W)E)) NEAR(5) complex)		
>>>Invalid syntax		
? s (cyclodextrin?(S)(tocopherol or (vitamin(W)E))NEAR(5)complex)		
>>>Invalid syntax		
? s (cyclodextrin?(S)(tocopherol or (vitamin(W)E))(W)complex)		
Processing		
Processing		
60796	CYCLODEXTRIN?	
50305	TOCOPHEROL	
180876	VITAMIN	
6614735	E	
59100	VITAMIN(W)E	
2212806	COMPLEX	
S3 3	(CYCLODEXTRIN?(S)(TOCOPHEROL OR (VITAMIN(W)E))(W)COMPLEX)	
? t s3/free/all		
>>>"FREE" is not a valid format name in file(s): 324, 348-349, 654		
? t s3/3,k/all		

3/3,K/1 (Item 1 from file: 324)  
 DIALOG(R)File 324:German Patents Fulltext  
 (c) 2006 Univentio. All rts..reserv.

0003943877 \*\*Image available\*\*  
**2:1-Komplex aus beta- oder gamma-Cyclodextrin und alpha-Tocopherol**  
 Patent Applicant/Assignee: WACKER CHEMIE GMBH, DE  
 Inventor(s): KUPKA MICHAELA, DE  
 Patent and Priority Information (Country, Number, Date):  
 Patent: DE 10200657 A1 20030724  
 Application: DE 10200657 20020110  
 Priority Application: DE 10200657 20020110 (DE 10200657)  
 Publication Language: German  
 Fulltext Word Count (English): 4520  
 Fulltext Word Count (German) : 4181  
 Fulltext Word Count (Both) : 8701

Fulltext Availability:  
 Description (English machine translation)  
 Description (English machine translation)  
 ... 1 complex is to be recognized clearly.  
 Color of the complexes after 8 months

Ss- Cyclodextrin /- Tocopherol complex ; 1: 1; light yellow colouring;  
Ss- Cyclodextrin /- Tocopherol complex ; 2: 1; almost knows; physical  
mixturesss- Cyclodextrin /-Tocopherol 2: 1 intensive yellow colouring;  
physical mixtures ss- Cyclodextrin /-Tocopherol 1: 1 intensive yellow  
colouring.

Example 5

Determination of the stability in storage of...

...with 50oC

Manufacture a cream with 0,2% -Tocopherol content in a 1:1  
-Cyclodextrin/- Tocopherol complex

0.4167 g of a -Cyclodextrin/-Tocopherol of complex 1: 1 (24%  
-Tocopherol) with 24...

...HPLC was examined.

Manufacture a cream with 0,2% -Tocopherol content in 2: 1 -Cyclodextrin/-  
Tocopherol complex

0.769 g of a -Cyclodextrin/-Tocopherol of complex 2: 1 (13% Tocopherol)  
with 24...

3/3,K/2 (Item 1 from file: 654)  
DIALOG(R)File 654:US Pat.Full.  
(c) Format only 2006 Dialog. All rts. reserv.

0005653927 \*\*IMAGE Available  
Derwent Accession: 2004-432837  
**Cosmetic composition comprising a complex of cyclodextrin and vitamin F**  
Inventor: Regiert, Marlies, INV  
Kupka, Michaela, INV  
Assignee: Wacker-Chemie GmbH(03), Munich, DE  
Correspondence Address: WILLIAM COLLARD COLLARD & ROE, P.C., 1077 NORTHERN  
BOULEVARD, ROSLYN, NY, 11576, US

	Publication Number	Kind	Date	Application Number	Filing Date
Main Patent	US 20040096413	A1	20040520	US 2003712703	20031112
Priority				DE 10253042	20021114

Fulltext Word Count: 7083

Non-exemplary or Dependent Claim(s):

...chloride; 59.0% by weight of water; 1.5% by weight of [small gamma,  
Greek]- cyclodextrin -[small alpha, Greek]- tocopherol complex ;  
and 4.0% by weight of [small alpha, Greek]- cyclodextrin -linoleic  
acid complex; and and wherein each percent by weight is based upon  
the total...

...weight of water; 1.70% by weight of [small gamma,  
Greek]-cyclodextrin-[small alpha, Greek]- tocopherol complex ;  
2.40% by weight of [small alpha, Greek]- cyclodextrin -linoleic acid  
complex; 0.05% by weight of methylchloroisothiazolinone; and 0.30% by  
weight of...

3/3,K/3 (Item 2 from file: 654)  
DIALOG(R) File 654:US Pat.Full.  
(c) Format only 2006 Dialog. All rts. reserv.

0005289174 \*\*IMAGE Available  
Derwent Accession: 2004-106475  
**2:1 Complex of beta- or gamma-cyclodextrin and alpha-tocopherol**  
Inventor: Marlies Regiert, INV  
Michaela Kupka, INV  
Assignee: WACKER-CHEMIE GmbH(03)  
Correspondence Address: COLLARD & ROE, P.C., 1077 Northern Boulevard,  
Roslyn, NY, 11576, US

	Publication Number	Kind	Date	Application Number	Filing Date
Main Patent	US 20030130231	A1	20030710	US 2002323019	20021219
Priority				DE 10200657,	20020110

Fulltext Word Count: 6349

Description of the Invention:

...0093] [small beta, Greek]- Cyclodextrin / [small alpha, Greek]- tocopherol complex 1:1 slight yellowing...  
...0094] [small beta, Greek]-cyclodextrin/[small alpha, Greek]- tocopherol complex 2:1 virtually white physical mixtures of [small beta, Greek]- cyclodextrin /[small alpha, Greek]-tocopherol 2:1 intensive yellowing...  
...Storage Stability of the [small gamma, Greek]-Cyclodextrin/[small alpha, Greek]- Tocopherol Complex in a Cream at RT and at 50 degree C...  
...alpha, Greek]-Tocopherol Content in a 1:1 [small gamma, Greek]-Cyclodextrin/[small alpha, Greek]- Tocopherol Complex

[...]

...0121] 0.4167 g of a [small gamma, Greek]-cyclodextrin/[small alpha, Greek]- tocopherol complex 1:1 (24% [small alpha, Greek]-tocopherol) were dispersed with 24.7251 g of water...

...alpha, Greek]-Tocopherol Content in a 2:1 [small gamma, Greek]-Cyclodextrin/[small alpha, Greek]- Tocopherol Complex :

[...]

...0123] 0.769 g of a [small gamma, Greek]-cyclodextrin/[small alpha, Greek]- tocopherol complex 2:1 (13% [small alpha, Greek]-tocopherol) were dispersed with 24.579 g of water  
? cost

17Jul06 15:42:02 User291213 Session D64.4  
\$6.03 0.257 DialUnits File34  
\$6.03 Estimated cost File34  
\$4.49 0.829 DialUnits File348  
\$4.49 Estimated cost File348  
\$6.17 1.300 DialUnits File349  
\$6.17 Estimated cost File349  
\$3.74 0.748 DialUnits File324

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        $1.70 1 Type(s) in Format  3
        $1.70 1 Types
$5.44 Estimated cost File324
        $19.91   3.374 DialUnits File654
        $1.40 2 Type(s) in Format  3
        $1.40 2 Types
$21.31 Estimated cost File654
OneSearch, 5 files, 6.508 DialUnits FileOS
$1.86 TELNET.
$45.30 Estimated cost this search
$90.77 Estimated total session cost 21.277 DialUnits

? logoff
    17Jul06 15:42:34 User291213 Session D64.4
        $6.03   0.257 DialUnits File34
$6.03 Estimated cost File34
        $4.49   0.829 DialUnits File348
$4.49 Estimated cost File348
        $6.17   1.300 DialUnits File349
$6.17 Estimated cost File349
        $3.74   0.748 DialUnits File324
        $1.70 1 Type(s) in Format  3
        $1.70 1 Types
$5.44 Estimated cost File324
        $19.91   3.374 DialUnits File654
        $1.40 2 Type(s) in Format  3
        $1.40 2 Types
$21.31 Estimated cost File654
OneSearch, 5 files, 6.508 DialUnits FileOS
$1.86 TELNET
$45.30 Estimated cost this search
$90.77 Estimated total session cost 21.277 DialUnits
```

Logoff: level 05.12.03 D 15:42:34

You are now logged off

37 654: US Pat.Full.\_1976-2006/Jul 13  
Examined 450 files  
Examined 500 files  
1 745: Investext(R) PDF Index\_1999--2006/Jul W3  
Examined 550 files

93 files have one or more items; file list includes 562 files.  
One or more terms were invalid in 226 files.

? b 5 73 35 34 144 155 24 440 357 162  
18jul06 14:24:21 User291213 Session D65.2  
\$11.07 4.179 DialUnits File411  
\$11.07 Estimated cost File411  
\$2.40 TELNET  
\$13.47 Estimated cost this search  
\$14.44 Estimated total session cost 4.416 DialUnits

SYSTEM:OS - DIALOG OneSearch  
File 5:Biosis Previews(R) 1969-2006/Jul W2  
(c) 2006 The Thomson Corporation  
File 73:EMBASE 1974-2006/Jul 18  
(c) 2006 Elsevier Science B.V.  
File 35:Dissertation Abs Online 1861-2006/Jun  
(c) 2006 ProQuest Info&Learning  
File 34:SciSearch(R) Cited Ref Sci 1990-2006/Jul W2  
(c) 2006 The Thomson Corp  
File 144:Pascal 1973-2006/Jun W4  
(c) 2006 INIST/CNRS  
File 155:MEDLINE(R) 1950-2006/Jul 17  
(c) format only 2006 Dialog  
File 24:CSA Life Sciences Abstracts 1966-2006/May  
(c) 2006 CSA  
File 440:Current Contents Search(R) 1990-2006/Jul 18  
(c) 2006 The Thomson Corp  
File 357:Derwent Biotech Res. 1982-2006/Jul W2  
(c) 2006 The Thomson Corp.  
File 162:Global Health 1983-2006/Jun  
(c) 2006 CAB International

Set	Items	Description
? s au=((horwitz, M?) or (Horwitz M?))	243	AU=HORWITZ, M?
	2286	AU=HORWITZ M?
S1	2529	AU=((HORWITZ, M?) OR (HORWITZ M?))
? s s1 and mycobacterium	2529	S1
	280867	MYCOBACTERIUM
S2	443	S1 AND MYCOBACTERIUM
? s s2 and (methionine or sulfoximine or phosphinothricin or glutamine)	443	S2
	219111	METHIONINE
	19889	SULFOXIMINE
	3621	PHOSPHINOTHRICIN
	154190	GLUTAMINE
S3	82	S2 AND (METHIONINE OR SULFOXIMINE OR PHOSPHINOTHRICIN OR GLUTAMINE)
? s s3 and anti(3n)bacter?		
Processing		
Processing		

Processing  
Processed 10 of 10 files ...  
Completed processing all files

82 S3  
2439789 ANTI  
5374442 BACTER?  
174052 ANTI(3N)BACTER?  
S4 2 S3 AND ANTI(3N)BACTER?  
? t s4/free/all

4/8/1 (Item 1 from file: 155)  
DIALOG(R)File 155:(c) format only 2006 Dialog. All rts. reserv.

14116641 PMID: 12496196

Inhibition of *Mycobacterium tuberculosis* glutamine synthetase as a novel antibiotic strategy against tuberculosis: demonstration of efficacy in vivo.

Jan 2003

Descriptors: \*Anti - Bacterial Agents--therapeutic use--TU; \*Antitubercular Agents--therapeutic use--TU; \*Glutamate-Ammonia Ligase --antagonists and inhibitors--AI; \* Methionine Sulfoximine --therapeutic use--TU; \* *Mycobacterium tuberculosis*--drug effects--DE; \*Tuberculosis, Pulmonary--drug therapy--DT; Animals; Anti - Bacterial Agents --pharmacology--PD; Antitubercular Agents--pharmacology--PD; Colony Count, Microbial; Disease Models, Animal; Drug Synergism; Guinea Pigs; Humans; Isoniazid--therapeutic use--TU; Lung--microbiology--MI; Methionine Sulfoximine --pharmacology--PD; Microbial Sensitivity Tests; *Mycobacterium tuberculosis*--enzymology--EN; Research Support, U.S. Gov't, P.H.S.; Spleen--microbiology--MI; Tuberculosis, Pulmonary--microbiology--MI CAS Registry No.: 0 (Anti-Bacterial Agents); 0 (Antitubercular Agents); 1982-67-8 (Methionine Sulfoximine); 54-85-3 (Isoniazid) Enzyme No.: EC 6.3.1.2 (Glutamate-Ammonia Ligase)

4/8/2 (Item 2 from file: 155)

DIALOG(R)File 155:(c) format only 2006 Dialog. All rts. reserv.

12380229 PMID: 10224282

An inhibitor of exported *Mycobacterium tuberculosis* glutamine synthetase selectively blocks the growth of pathogenic mycobacteria in axenic culture and in human monocytes: extracellular proteins as potential novel drug targets.

May 3 1999

Descriptors: \*Glutamate-Ammonia Ligase--antagonists and inhibitors--AI; \*Monocytes--microbiology--MI; \* *Mycobacterium tuberculosis* --growth and development--GD; Aminobutyric Acids--pharmacology--PD; Animals; Anti - Bacterial Agents--pharmacology--PD; Cell Wall--metabolism--ME; Drug Synergism; Enzyme Inhibitors--pharmacology--PD; Extracellular Space; Glutamic Acid--metabolism--ME; Humans; Methionine Sulfoximine --pharmacology--PD; Monocytes--drug effects--DE; *Mycobacterium tuberculosis*--drug effects--DE; Peptidoglycan--metabolism--ME; Polyglutamic Acid--metabolism--ME; Research Support, U.S. Gov't, P.H.S.; Sheep CAS Registry No.: 0 (Aminobutyric Acids); 0 (Anti-Bacterial Agents); 0 (Enzyme Inhibitors); 0 (Peptidoglycan); 1982-67-8 (Methionine Sulfoximine); 25513-46-6 (Polyglutamic Acid); 51276-47-2 (phosphinothricin); 56-86-0 (Glutamic Acid) Enzyme No.: EC 6.3.1.2 (Glutamate-Ammonia Ligase)

? t s4/3,k/all

4/3,K/1 (Item 1 from file: 155)

DIALOG(R) File 155: MEDLINE(R)  
(c) format only 2006 Dialog. All rts. reserv.

14116641 PMID: 12496196

Inhibition of *Mycobacterium tuberculosis* glutamine synthetase as a novel antibiotic strategy against tuberculosis: demonstration of efficacy in vivo.

Harth Gunter; Horwitz Marcus A

Department of Medicine, School of Medicine, University of California, Los Angeles, California 90095-1688, USA.

Infection and immunity (United States) Jan 2003, 71 (1) p456-64,  
ISSN 0019-9567--Print Journal Code: 0246127

Contract/Grant No.: AI42925; AI; NIAID

Publishing Model Print

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: MEDLINE; Completed

Inhibition of *Mycobacterium tuberculosis* glutamine synthetase as a novel antibiotic strategy against tuberculosis: demonstration of efficacy in vivo.

Harth Gunter; Horwitz Marcus A

... humankind's greatest killers, and new therapeutic strategies are needed to combat the causative agent, *Mycobacterium tuberculosis*, which is rapidly developing resistance to conventional antibiotics. Using the highly demanding guinea pig model of pulmonary tuberculosis, we have investigated the feasibility of inhibiting *M. tuberculosis* glutamine synthetase (GS), an enzyme that plays a key role in both nitrogen metabolism and cell...

... by aerosol with the highly virulent Erdman strain of *M. tuberculosis*, the GS inhibitor L-methionine -SR- sulfoximine (MSO) protected the animals against weight loss, a hallmark of tuberculosis, and against the growth...

Descriptors: \*Anti - Bacterial Agents--therapeutic use--TU; \*Antitubercular Agents--therapeutic use--TU; \*Glutamate-Ammonia Ligase --antagonists and inhibitors--AI; \*Methionine Sulfoximine --therapeutic use--TU; \* *Mycobacterium tuberculosis*--drug effects--DE; \*Tuberculosis, Pulmonary--drug therapy--DT; Animals; Anti - Bacterial Agents --pharmacology--PD; Antitubercular Agents--pharmacology--PD; Colony Count, Microbial; Disease Models, Animal; Drug Synergism; Guinea Pigs; Humans; Isoniazid--therapeutic use--TU; Lung--microbiology--MI; Methionine Sulfoximine --pharmacology--PD; Microbial Sensitivity Tests; *Mycobacterium tuberculosis*--enzymology--EN; Research Support, U.S. Gov't, P.H.S.; Spleen--microbiology--MI...

Chemical Name: Anti - Bacterial Agents; Antitubercular Agents; Methionine Sulfoximine ; Isoniazid; Glutamate-Ammonia Ligase

4/3,K/2 (Item 2 from file: 155)

DIALOG(R) File 155: MEDLINE(R)  
(c) format only 2006 Dialog. All rts. reserv.

12380229 PMID: 10224282

An inhibitor of exported *Mycobacterium tuberculosis* glutamine synthetase selectively blocks the growth of pathogenic mycobacteria in axenic culture and in human monocytes: extracellular proteins as potential novel drug targets.

Harth G; Horwitz M A

Department of Medicine, University of California at Los Angeles School of Medicine, Los Angeles, California 90095, USA.

Journal of experimental medicine (UNITED STATES) May 3 1999, 189 (9)  
p1425-36, ISSN 0022-1007--Print Journal Code: 2985109R

Contract/Grant No.: AI 31338; AI; NIAID; AI 42925; AI; NIAID

Publishing Model Print

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: MEDLINE; Completed

An inhibitor of exported *Mycobacterium tuberculosis* glutamine synthetase selectively blocks the growth of pathogenic mycobacteria in axenic culture and in human monocytes...

Harth G; Horwitz M A

*Mycobacterium tuberculosis* and other pathogenic mycobacteria export abundant quantities of proteins into their extracellular milieu when growing either axenically or within phagosomes of host cells. One major extracellular protein, the enzyme glutamine synthetase, is of particular interest because of its link to pathogenicity. Pathogenic mycobacteria, but not...

...Interestingly, export of the enzyme is associated with the presence of a poly-L-glutamate/ glutamine structure in the mycobacterial cell wall. In this study, we investigated the influence of glutamine synthetase inhibitors on the growth of pathogenic and nonpathogenic mycobacteria and on the poly-L-glutamate/ glutamine cell wall structure. The inhibitor L-methionine -S- sulfoximine rapidly inactivated purified *M. tuberculosis* glutamine synthetase, which was 100-fold more sensitive to this inhibitor than a representative mammalian glutamine synthetase. Added to cultures of pathogenic mycobacteria, L-methionine - S- sulfoximine rapidly inhibited extracellular glutamine synthetase in a concentration-dependent manner but had only a minimal effect on cellular glutamine synthetase, a finding consistent with failure of the drug to cross the mycobacterial cell wall. Remarkably, the inhibitor selectively blocked the growth of pathogenic mycobacteria, all of which release glutamine synthetase extracellularly, but had no effect on nonpathogenic mycobacteria or nonmycobacterial microorganisms, none of which release glutamine synthetase extracellularly. The inhibitor was also bacteriostatic for *M. tuberculosis* in human mononuclear phagocytes (THP...

... perhaps underlying its bacteriostatic effect, the inhibitor markedly reduced the amount of poly-L-glutamate/ glutamine cell wall structure in *M. tuberculosis*. Although it is possible that glutamine synthetase inhibitors interact with additional extracellular proteins or structures, our findings support the concept that...

Descriptors: \*Glutamate-Ammonia Ligase--antagonists and inhibitors--AI; \*Monocytes--microbiology--MI; \* *Mycobacterium tuberculosis*--growth and development--GD; Aminobutyric Acids--pharmacology--PD; Animals; Anti-Bacterial Agents--pharmacology--PD; Cell Wall--metabolism--ME; Drug Synergism; Enzyme Inhibitors--pharmacology--PD; Extracellular Space; Glutamic Acid--metabolism--ME; Humans; Methionine Sulfoximine--pharmacology--PD; Monocytes--drug effects--DE; *Mycobacterium tuberculosis*--drug effects--DE; Peptidoglycan--metabolism--ME; Polyglutamic Acid--metabolism--ME; Research Support, U.S...

Chemical Name: Aminobutyric Acids; Anti-Bacterial Agents; Enzyme Inhibitors; Peptidoglycan; Methionine Sulfoximine; Polyglutamic Acid; phosphinothricin; Glutamic Acid; Glutamate-Ammonia Ligase  
? ds

```

Set      Items   Description
S1      2529   AU=((HORWITZ, 'M?) OR (HORWITZ M?))
S2      443    S1 AND MYCOBACTERIUM
S3      82     S2 AND (METHIONINE OR SULFOXIMINE OR PHOSPHINOTHRICIN OR G-
          LUTAMINE)
S4      2      S3 AND ANTI(3N)BACTER?
? s s3 and (glutamine()synth?)
Processing
Processing
Processed 10 of 10 files ...
Completed processing all files
          82  S3
          154190 GLUTAMINE
          5910402 SYNTH?
          32944 GLUTAMINE(W)SYNTH?
          S5      74  S3 AND (GLUTAMINE()SYNTH?)
? s s5 and py<2002
Processing
Processing
Processing
Processing
Processed 10 of 10 files ...
Completed processing all files
          74  S5
          77298337 PY<2002
          S6      39  S5 AND PY<2002
? rd
>>>Record 440:13075717 incomplete bibliographic data - record retained in RD
set
>>>Record 440:11242977 incomplete bibliographic data - record retained in RD
set
>>>Record 440:10551256 incomplete bibliographic data - record retained in RD
set
>>>Record 440:8796867 incomplete bibliographic data - record retained in RD
set
>>>Record 440:8141401 incomplete bibliographic data - record retained in RD
set
>>>Record 440:5801034 incomplete bibliographic data - record retained in RD
set
          S7      13  RD (unique items)
? t s7/3,k/all

7/3,K/1 (Item 1 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)
(c) 2006 The Thomson Corporation. All rts. reserv.

```

0013332249 BIOSIS NO.: 200100504088  
**High extracellular levels of Mycobacterium tuberculosis glutamine synthetase and superoxide dismutase in actively growing cultures are due to high expression and extracellular stability rather than to a protein-specific export mechanism**  
AUTHOR: Tullius Michael V; Harth Gunter; Horwitz Marcus A (Reprint  
AUTHOR ADDRESS: Division of Infectious Diseases, Department of Medicine,  
School of Medicine, UCLA, 10833 Le Conte Ave., CHS 37-121, Los Angeles,  
CA, 90095-1688, USA\*\*USA  
JOURNAL: Infection and Immunity 69 (10): p6348-6363 October, 2001 2001  
MEDIUM: print  
ISSN: 0019-9567  
DOCUMENT TYPE: Article  
RECORD TYPE: Abstract  
LANGUAGE: English

**High extracellular levels of *Mycobacterium tuberculosis* glutamine synthetase and superoxide dismutase in actively growing cultures are due to high expression and extracellular stability...**

...AUTHOR: Horwitz Marcus A  
2001

**ABSTRACT:** Glutamine synthetase (GS) and superoxide dismutase (SOD), large multimeric enzymes that are thought to play important roles in the pathogenicity of *Mycobacterium tuberculosis*, are among the bacterium's major culture filtrate proteins in actively growing cultures. Although...

...of export, we cloned the homologous genes (*glnA1* and *sodA*) from the rapid-growing, nonpathogenic *Mycobacterium smegmatis*, generated *glnA1* and *sodA* mutants of *M. smegmatis* by allelic exchange, and quantitated expression...

...REGISTRY NUMBERS: glutamine synthetase ;  
DESCRIPTORS:

...ORGANISMS: *Mycobacterium smegmatis* (Mycobacteriaceae...)

... *Mycobacterium tuberculosis* (Mycobacteriaceae)

CHEMICALS & BIOCHEMICALS: glutamine synthetase {GS...

GENE NAME: *Mycobacterium tuberculosis glnA1 gene* (Mycobacteriaceae...)

... *Mycobacterium tuberculosis sodA gene* (Mycobacteriaceae)

7/3,K/2 (Item 2 from file: 5)  
DIALOG(R)File 5:Biosis Previews(R)  
(c) 2006 The Thomson Corporation. All rts. reserv.

0012384759 BIOSIS NO.: 200000103072

**Treatment of *Mycobacterium tuberculosis* with antisense oligonucleotides to glutamine synthetase mRNA inhibits glutamine synthetase activity, formation of the poly-L-glutamate/ glutamine cell wall structure, and bacterial replication**

AUTHOR: Harth Gunter; Zamecnik Paul C; Tang Jin-Yan; Tabatadze David; Horwitz Marcus A (Reprint)

AUTHOR ADDRESS: Division of Infectious Diseases, Department of Medicine, School of Medicine, University of California, 10833 Le Conte Avenue, 37-121 CHS, Los Angeles, CA, 90095, USA\*\*USA

JOURNAL: Proceedings of the National Academy of Sciences of the United States of America 97 (1): p418-423 Jan. 4, 2000 2000

MEDIUM: print

ISSN: 0027-8424

DOCUMENT TYPE: Article

RECORD TYPE: Abstract

LANGUAGE: English

**Treatment of *Mycobacterium tuberculosis* with antisense oligonucleotides to glutamine synthetase mRNA inhibits glutamine synthetase activity, formation of the poly-L-glutamate/ glutamine cell wall structure, and bacterial replication**

...AUTHOR: Horwitz Marcus A  
2000

**ABSTRACT:** New antibiotics to combat the emerging pandemic of drug-resistant strains of *Mycobacterium tuberculosis* are urgently needed. We have investigated the effects on *M. tuberculosis* of phosphorothioate-modified antisense oligodeoxyribonucleotides (PS-ODNs) against the mRNA of

glutamine synthetase, an enzyme whose export is associated with pathogenicity and with the formation of a poly-L-glutamate/ glutamine cell wall structure. Treatment of virulent *M. tuberculosis* with 10 μM antisense PS-ODNs reduced glutamine synthetase activity and expression by 25-50% depending on whether one, two, or three different PS

...

...specific target sites on the mRNA. Treatment with PS-ODNs of a recombinant strain of *Mycobacterium smegmatis* expressing *M. tuberculosis* glutamine synthetase selectively inhibited the recombinant enzyme but not the endogenous enzyme for which the mRNA transcript...

...*M. tuberculosis* with the antisense PS-ODNs also reduced the amount of poly-L-glutamate/ glutamine in the cell wall by 24%. Finally, treatment with antisense PS-ODNs reduced *M. tuberculosis*...

...ODNs) but had no effect on the growth of *M. smegmatis*, which does not export glutamine synthetase nor possess the poly-L-glutamate/ glutamine (P-L-glx) cell wall structure. The experiments indicate that the antisense PS-ODNs enter...

...REGISTRY NUMBERS: glutamine synthetase

DESCRIPTORS:

ORGANISMS: *Mycobacterium smegmatis* (Mycobacteriaceae...)

... *Mycobacterium tuberculosis* (Mycobacteriaceae)

CHEMICALS & BIOCHEMICALS: glutamine synthetase --...

... glutamine synthetase mRNA...

...poly-L-glutamate/ glutamine --

7/3,K/3 (Item 3 from file: 5)

DIALOG(R)File 5:Biosis Previews(R)

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0012014555 BIOSIS NO.: 199900274215

An inhibitor of exported *Mycobacterium tuberculosis* glutamine synthetase selectively blocks the growth of pathogenic mycobacteria in axenic culture and in human monocytes: Extracellular proteins as potential novel drug targets

AUTHOR: Harth Gunter; Horwitz Marcus A (Reprint)

AUTHOR ADDRESS: Department of Medicine, 37-121 CHS, School of Medicine, University of California at Los Angeles, 10833 Le Conte Ave., Los Angeles, CA, 90095, USA\*\*USA

JOURNAL: Journal of Experimental Medicine 189 (9): p1425-1435 May 3, 1999

1999

MEDIUM: print

ISSN: 0022-1007

DOCUMENT TYPE: Article

RECORD TYPE: Abstract

LANGUAGE: English

An inhibitor of exported *Mycobacterium tuberculosis* glutamine synthetase selectively blocks the growth of pathogenic mycobacteria in axenic culture and in human monocytes: Extracellular...

...AUTHOR: Horwitz Marcus A

1999

**ABSTRACT:** *Mycobacterium tuberculosis* and other pathogenic mycobacteria export abundant quantities of proteins into their extracellular milieu when growing either axenically or within phagosomes of host cells. One major extracellular protein, the enzyme **glutamine synthetase**, is of particular interest because of its link to pathogenicity. Pathogenic mycobacteria, but not nonpathogenic...

...Interestingly, export of the enzyme is associated with the presence of a poly-L-glutamate/ **glutamine** structure in the mycobacterial cell wall. In this study, we investigated the influence of **glutamine synthetase** inhibitors on the growth of pathogenic and nonpathogenic mycobacteria and on the poly-L-glutamate/ **glutamine** cell wall structure. The inhibitor L-**methionine -S- sulfoximine** rapidly inactivated purified *M. tuberculosis* **glutamine synthetase**, which was 100-fold more sensitive to this inhibitor than a representative mammalian **glutamine synthetase**. Added to cultures of pathogenic mycobacteria, L-**methionine -S- sulfoximine** rapidly inhibited extracellular **glutamine synthetase** in a concentration-dependent manner but had only a minimal effect on cellular **glutamine synthetase**, a finding consistent with failure of the drug to cross the mycobacterial cell wall. Remarkably, the inhibitor selectively blocked the growth of pathogenic mycobacteria, all of which release **glutamine synthetase** extracellularly, but had no effect on nonpathogenic mycobacteria or nonmycobacterial microorganisms, none of which release **glutamine synthetase** extracellularly. The inhibitor was also bacteriostatic for *M. tuberculosis* in human mononuclear phagocytes (THP-1...).

...perhaps underlying its bacteriostatic effect, the inhibitor markedly reduced the amount of poly-L-glutamate/ **glutamine** cell wall structure in *M. tuberculosis*. Although it is possible that **glutamine synthetase** inhibitors interact with additional extracellular proteins or structures, our findings support the concept that extracellular...

...REGISTRY NUMBERS: **glutamine** ; ...

... **glutamine** ; ...

... **glutamine synthetase** ; ...

...poly-L- **glutamine**

DESCRIPTORS:

...ORGANISMS: *Mycobacterium tuberculosis* (Mycobacteriaceae)

CHEMICALS & BIOCHEMICALS: ... **glutamine** ; ...

... **glutamine synthetase** ; ...

...poly-L- **glutamine**

7/3,K/4 (Item 4 from file: 5)  
DIALOG(R)File '5:Biosis Previews(R)  
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0011125678 BIOSIS NO.: 199799759738

Expression and efficient export of enzymatically active *Mycobacterium tuberculosis* glutamine synthetase in *Mycobacterium smegmatis* and evidence that the information for export is contained within the protein

AUTHOR: Harth Gunter; Horwitz Marcus A (Reprint)

AUTHOR ADDRESS: Div. Infect. Dis., Dep. Med., 37-121 CHS, Sch. Med., UCLA, 10883 Le Conte Ave., Los Angeles, CA 90095, USA\*\*USA

JOURNAL: Journal of Biological Chemistry 272 (36): p22728-22735 1997 1997

ISSN: 0021-9258  
DOCUMENT TYPE: Article  
RECORD TYPE: Abstract  
LANGUAGE: English

Expression and efficient export of enzymatically active *Mycobacterium tuberculosis* glutamine synthetase in *Mycobacterium smegmatis* and evidence that the information for export is contained within the protein  
...AUTHOR: Horwitz Marcus A  
1997

ABSTRACT: We have investigated the expression and extracellular release of active, recombinant *Mycobacterium tuberculosis* glutamine synthetase (EC 6.3.1.2), an enzyme that is a potentially important determinant of *M. tuberculosis* infection and whose extracellular release is correlated with pathogenicity. The *M. tuberculosis* glutamine synthetase gene encodes a polypeptide of 478 amino acids; 12 such subunits comprise the active enzyme. Northern blot, nuclease S1, and primer extension analyses revealed glutamine synthetase specific transcripts of apprx 1,550 and 1,650 nucleotides produced under low and high nitrogen conditions, respectively. Expression of recombinant *M. tuberculosis* glutamine synthetase in *Escherichia coli* YMC21E, a glutamine synthetase deletion mutant, led to transcomplementation of the mutant but not to release of active enzyme. Expression in *Mycobacterium smegmatis* 1-2c, from the gene's own promoter, resulted in the release of gt 95% of all recombinant enzyme. No hybrid molecules containing *M. tuberculosis* and *M. smegmatis* glutamine synthetase subunits were detected. Native and recombinant exported and intracellular glutamine synthetase molecules were indistinguishable from one another by mass, N-terminal amino acid sequence, antibody reactivity, and enzymatic activity. Since *M. tuberculosis* glutamine synthetase is similar to other, strictly intracellular, bacterial glutamine synthetases and the DNA sequence upstream of the structural gene does not encode a leader peptide...

...REGISTRY NUMBERS: GLUTAMINE SYNTHETASE ;  
DESCRIPTORS:

...ORGANISMS: *Mycobacterium smegmatis* (Mycobacteriaceae...  
... *Mycobacterium tuberculosis* (Mycobacteriaceae)  
CHEMICALS & BIOCHEMICALS: GLUTAMINE SYNTHETASE ;  
MISCELLANEOUS TERMS: ... GLUTAMINE SYNTHETASE ; ...  
... GLUTAMINE SYNTHETASE GENE

7/3,K/5 (Item 5 from file: 5)  
DIALOG(R)File 5:Biosis Previews(R)  
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0009694391 BIOSIS NO.: 199598162224  
Characterization of *Mycobacterium tuberculosis* glutamine synthetase  
AUTHOR: Harth Gunter; Clemens Daniel L; Horwitz Marcus A  
AUTHOR ADDRESS: Dep. Med., Sch. Med., Univ. Calif., Los Angeles, CA 90024,  
USA\*\*USA  
JOURNAL: Journal of Cellular Biochemistry Supplement 0 (19B): p68 1995  
1995  
CONFERENCE/MEETING: Keystone Symposium on Molecular Mechanisms in  
Tuberculosis Tamarron, Colorado, USA February 19-25, 1995; 19950219  
ISSN: 0733-1959  
DOCUMENT TYPE: Meeting; Meeting Abstract; Meeting Poster  
RECORD TYPE: Citation

LANGUAGE: English

Characterization of *Mycobacterium tuberculosis* glutamine synthetase

...AUTHOR: Horwitz Marcus A

1995

...REGISTRY NUMBERS: GLUTAMINE SYNTHETASE ; ...

... GLUTAMINE ; ...

... GLUTAMINE

DESCRIPTORS:

ORGANISMS: *Mycobacterium tuberculosis* (Mycobacteriaceae)

CHEMICALS & BIOCHEMICALS: GLUTAMINE SYNTHETASE ; ...

... GLUTAMINE

MISCELLANEOUS TERMS: ...EXTRACELLULAR GLUTAMINE SYNTHESIS ;

7/3,K/6 (Item 1 from file: 73)

DIALOG(R) File...73:EMBASE

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05888998 EMBASE No: 1994302190

Glutamine synthetase of *Mycobacterium tuberculosis*: Extracellular release and characterization of its enzymatic activity

Harth G.; Clemens D.L.; Horwitz M.A.

Center for the Health Sciences, School of Medicine, University of California, 10833 Le Conte Avenue, Los Angeles, CA 90024 United States  
Proceedings of the National Academy of Sciences of the United States of America (PROC. NATL. ACAD. SCI. U. S. A.) (United States) 1994, 91/20 (9342-9346)

CODEN: PNASA ISSN: 0027-8424

DOCUMENT TYPE: Journal; Article

LANGUAGE: ENGLISH SUMMARY LANGUAGE: ENGLISH

Glutamine synthetase of *Mycobacterium tuberculosis*: Extracellular release and characterization of its enzymatic activity

Harth G.; Clemens D.L.; Horwitz M.A.

We have investigated the activity and extracellular release of glutamine synthetase (L-glutamate:ammonia ligase (ADP-forming), EC 6.3.1.2) of *Mycobacterium tuberculosis*. The purified, homogeneous *M. tuberculosis* glutamine synthetase appears to consist of 12 most likely identical subunits of M(r) 58,000, arranged in two superimposed hexagons. In the catalysis of L-glutamine, the enzyme has an apparent K(m) for L-glutamate of approx. eq.3 mM...

...releases the enzyme into its phagosome in infected human monocytes. Two potentially important roles for glutamine synthetase in the pathogenesis of *M. tuberculosis* infection are (i) the synthesis of L-glutamine, a major component of the cell wall of pathogenic but not nonpathogenic mycobacteria, and (ii...).

DRUG DESCRIPTORS:

\*glutamate ammonia ligase--endogenous compound--ec; \* glutamine --endogenous compound--ec

MEDICAL DESCRIPTORS:

\*enzyme activity; \*enzyme release; \* mycobacterium tuberculosis

...CAS REGISTRY NO.: 6899-04-3 ( glutamine )

1994

7/3,K/7 (Item 1 from file: 34)  
DIALOG(R) File 34:SciSearch(R) Cited Ref Sci  
(c) 2006 The Thomson Corp. All rts. reserv.

07443946 Genuine Article#: 166KQ No. References: 28  
**Title:** Export of recombinant *Mycobacterium tuberculosis* superoxide dismutase is dependent upon both information in the protein and mycobacterial export machinery - A model for studying export of leaderless proteins by pathogenic mycobacteria  
**Author(s):** Harth G; Horwitz MA (REPRINT)  
**Corporate Source:** UNIV CALIF LOS ANGELES,SCH MED, DEPT MED, DIV INFECT DIS, 10833 LE CONTE AVE/LOS ANGELES//CA/90095 (REPRINT); UNIV CALIF LOS ANGELES,SCH MED, DEPT MED, DIV INFECT DIS/LOS ANGELES//CA/90095  
**Journal:** JOURNAL OF BIOLOGICAL CHEMISTRY, 1999, V274, N7 (FEB 12), P 4281-4292  
**ISSN:** 0021-9258 Publication date: 19990212  
**Publisher:** AMER SOC BIOCHEMISTRY MOLECULAR BIOLOGY INC, 9650 ROCKVILLE PIKE, BETHESDA, MD 20814  
**Language:** English Document Type: ARTICLE (ABSTRACT AVAILABLE)

**Title:** Export of recombinant *Mycobacterium tuberculosis* superoxide dismutase is dependent upon both information in the protein and mycobacterial export machinery...  
**Author(s):** Harth G; Horwitz MA (REPRINT)  
, 1999  
...Abstract: extracellular release of enzymatically active superoxide dismutase, one of the 10 major extracellular proteins of *Mycobacterium tuberculosis*, both in its native host and in the heterologous host *Mycobacterium smegmatis*. We found that the *M. tuberculosis* superoxide dismutase gene, encoding a leaderless polypeptide of...  
...at a B-fold increased level under conditions of hydrogen peroxide stress. The highly pathogenic *mycobacterium* *M. tuberculosis* expresses 93-fold more superoxide dismutase than the nonpathogenic *mycobacterium* *M. smegmatis*, and it exports a much higher proportion of expressed enzyme (76 versus 21...  
...Identifiers--ESCHERICHIA-COLI; GLUTAMINE - SYNTHETASE ; EXPRESSION; GENE; IDENTIFICATION; PHAGOCYTOSIS; RECEPTORS; SEQUENCE; ANTIGEN; RELEASE

7/3,K/8 (Item 1 from file: 440)  
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13075717  
ISSN: 0019-9567  
**JOURNAL:** INFECTION AND IMMUNITY , 2001  
(TABLE OF CONTENTS RECORD)  
(The Complete Table of Contents now Available in Format 19)

, 2001

...101 REFERENCES

Section Heading: MOLECULAR PATHOGENESIS

P. 5967-5973. Silencing of oxidative stress response in *Mycobacterium tuberculosis*: Expression patterns of ahpC in virulent and avirulent strains and effect of ahpC inactivation...MD/20814. English.

ARTICLE. 64 REFERENCES. ABSTRACT AVAILABLE

P. 6348-6363. High extracellular levels of **Mycobacterium** tuberculosis **glutamine synthetase** and superoxide dismutase in actively growing cultures are due to high expression and extracellular stability rather than to a protein-specific export mechanism. Tullius MV; Harth G; **Horwitz MA**. Univ Calif Los Angeles, Div Infect Dis, CHS 37-121, 10833 Le Conte Ave...02115. English. ARTICLE. 29 REFERENCES. ABSTRACT AVAILABLE

P. 6156-6164. Enhancement of innate immunity against **Mycobacterium avium** infection by immunostimulatory DNA is mediated by indoleamine 2,3-dioxygenase. Hayashi T; Rao...inhibitory molecules down-regulate the cytolytic activity of human CD4(+) T-cell clones specific for **Mycobacterium** tuberculosis. Merlo A; Saverino D; Tenca C; Grossi CE; Bruno S; Ciccone E. Univ Genoa...

7/3,K/9 (Item 2 from file: 440)

DIALOG(R) File 440:Current Contents Search(R)  
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11242977

ISSN: 0027-8424

JOURNAL: PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA , 2000

(TABLE OF CONTENTS RECORD)

(The Complete Table of Contents now Available in Format 19)

, 2000

...College Pk//MD/20742. English. ARTICLE. 47 REFERENCES. ABSTRACT AVAILABLE

P. 418-423. Treatment of **Mycobacterium** tuberculosis with antisense oligonucleotides to **glutamine synthetase** mRNA inhibits **glutamine synthetase** activity, formation of the poly-L-glutamate/**glutamine** cell wall structure, and bacterial replication. Harth G; Zamecnik PC; Tang JY; Tabatadze D; **Horwitz MA**. Univ Calif Los Angeles, Sch Med, 37-121 CHS, 10833 Conte Ave/Los Angeles...

7/3,K/10 (Item 3 from file: 440)

DIALOG(R) File 440:Current Contents Search(R)  
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10551256

ISSN: 0022-1007

JOURNAL: JOURNAL OF EXPERIMENTAL MEDICINE , 1999

(TABLE OF CONTENTS RECORD)

(The Complete Table of Contents now Available in Format 19)

, 1999

...South Africa/. English. ARTICLE. 41 REFERENCES. ABSTRACT AVAILABLE

P. 1425-1435. An inhibitor of exported **Mycobacterium** tuberculosis **glutamine synthetase** selectively blocks the growth of pathogenic mycobacteria in axenic culture and in human monocytes: Extracellular

proteins as potential novel drug targets. Harth G; Horwitz MA.  
Univ Calif Los Angeles, Dept Med, 37-121 CHS, 10833 Le Conte Ave/Los  
...

7/3,K/11 (Item 4 from file: 440)  
DIALOG(R)File 440:Current Contents Search(R)  
(c) 2006 The Thomson Corp. All rts. reserv.

08796867  
ISSN: 0021-9258  
JOURNAL: JOURNAL OF BIOLOGICAL CHEMISTRY , 1997  
(TABLE OF CONTENTS RECORD)  
(The Complete Table of Contents now Available in Format 19)

, 1997

...P. 22728-22735. Expression and efficient export of enzymatically active **Mycobacterium tuberculosis glutamine synthetase** in **Mycobacterium smegmatis** and evidence that the information for export is contained within the protein. Harth G; Horwitz MA. UNIV CALIF LOS ANGELES,SCH MED, DEPT MED, DIV INFECT DIS, 10833 LE CONTE...P. 22875-22883. Characterization of rat liver-specific methionine adenosyltransferase gene promoter - Role of distal upstream cis-acting elements in the regulation of the...

7/3,K/12 (Item 5 from file: 440)  
DIALOG(R)File 440:Current Contents Search(R)  
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08141401  
ISSN: 0019-9567  
JOURNAL: INFECTION AND IMMUNITY , 1997  
(TABLE OF CONTENTS RECORD)  
(The Complete Table of Contents now Available in Format 19)

, 1997

...P. 387-394. Analysis of culture filtrate and cell wall-associated antigens of **Mycobacterium paratuberculosis**.with monoclonal antibodies. Mutharia LM; Moreno W; Raymond M. UNIV GUELPH,DEPT MICROBIOL/GUELPH...P. 587-596. Simultaneous prevention of glutamine synthesis and high-affinity transport attenuates **Salmonella typhimurium** virulence. Klose KE; Mekalanos JJ. HARVARD UNIV,SCH...P. 676-684. Induction of cytotoxic T-Cell responses against culture filtrate antigens in **Mycobacterium bovis** bacillus Calmette-Guerin-infected mice. Denis O; Lozes E; Huygen K. INST PASTEUR,LAB...

P. 692-698. Effects of **Mycobacterium tuberculosis** on the bioelectric properties of the alveolar epithelium. Zhang M; Kim KJ; Iyer DP. 767-773. **Mycobacterium marinum** causes both long-term subclinical infection and acute disease in the leopard frog (Rana...insights into the genetics, biochemistry, and immunocytochemistry of the 30-kilodalton major extracellular protein of **Mycobacterium tuberculosis** (vol 64, pg 3041, 1996). Harth G; Lee BY; Wang J; Clemens DL; Horwitz MA. UNIV CALIF LOS ANGELES,SCH MED, DEPT MED, DIV INFECT DIS/LOS ANGELES//CA...

7/3,K/13 (Item 6 from file: 440)  
DIALOG(R)File 440:Current Contents Search(R)  
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05801034  
ISSN: 0027-8424  
JOURNAL: PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA , 1994  
(TABLE OF CONTENTS RECORD)  
(The Complete Table of Contents now Available in Format 19)

, 1994

...P. 9342-9346. GLUTAMINE SYNTHETASE OF MYCOBACTERIUM TUBERCULOSIS - EXTRACELLULAR RELEASE AND CHARACTERIZATION OF ITS ENZYMATIC ACTIVITY. HARTH G; CLEMENS DL; HORWITZ MA. UNIV CALIF LOS ANGELES,SCH MED,CTR HLTH SCI 37121,DEPT MED,DIV INFECT...

? ds

Set	Items	Description
S1	2529	AU=((HORWITZ, M?) OR (HORWITZ M?))
S2	443	S1 AND MYCOBACTERIUM
S3	82	S2 AND (METHIONINE OR SULFOXIMINE OR PHOSPHINOTHRICIN OR G-LUTAMINE)
S4	2	S3 AND ANTI(3N)BACTER?
S5	74	S3 AND (GLUTAMINE()SYNTH?)
S6	39	S5 AND PY<2002
S7	13	RD (unique items)

? s s5 and py=2002

74	S5	
4508739	PY=2002	
S8	6	S5 AND PY=2002

? rd

S9	1	RD (unique items)
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? t s9/3,k/all

9/3,K/1 (Item 1 from file: 5)  
DIALOG(R)File 5:Biosis Previews(R)  
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0014097197 BIOSIS NO.: 200300055916  
Targeting the Mycobacterium tuberculosis 30/32-kDa mycolyl transferase complex as a therapeutic strategy against tuberculosis: Proof of principle by using antisense technology.  
AUTHOR: Harth Gunter; Horwitz Marcus A (Reprint); Tabatadze David; Zamecnik Paul C  
AUTHOR ADDRESS: Division of Infectious Diseases, Department of Medicine, University of California, 10833 Le Conte Avenue, 37-121 Center for Health Sciences, School of Medicine, Los Angeles, CA, 90095, USA\*\*USA  
AUTHOR E-MAIL ADDRESS: mhorwitz@mednet.ucla.edu  
JOURNAL: Proceedings of the National Academy of Sciences of the United States of America 99 (24): p15614-15619 November 26, 2002 2002  
MEDIUM: print  
ISSN: 0027-8424 (ISSN print)  
DOCUMENT TYPE: Article  
RECORD TYPE: Abstract  
LANGUAGE: English

2002

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? logoff
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            $3.10  1 Types
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        $3.81   0.930 DialUnits File35
$3.81 Estimated cost File35
        $48.18   2.053 DialUnits File34
            $6.82  1 Type(s) in Format  3
            $6.82  1 Types
$55.00 Estimated cost File34
        $11.23   2.496 DialUnits File144
$11.23 Estimated cost File144
        $8.64   2.541 DialUnits File155
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$9.08 Estimated cost File155
        $6.20   1.000 DialUnits File24
$6.20 Estimated cost File24
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$16.22 Estimated cost File357
        $2.72   0.605 DialUnits File162
$2.72 Estimated cost File162
        OneSearch, 10 files, 17.699 DialUnits FileOS
        $3.46   TELNET
$263.89 Estimated cost this search
$278.33 Estimated total session cost  22.115 DialUnits
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Logoff: level 05.12.03 D 14:37:19

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Dialog level 05.12.03D

Last logoff: 17jul06 15:42:34  
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\*\*\* ANNOUNCEMENTS \*\*\*

\*\*\*

NEW FILES RELEASED

\*\*\*Trademarkscan - South Korea (File 655)  
\*\*\*Regulatory Affairs Journals (File 183)  
\*\*\*Index Chemicus (File 302)  
\*\*\*Inspec (File 202)

RESUMED UPDATING

\*\*\*File 141, Reader's Guide Abstracts

\*\*\*

RELOADS COMPLETED

\*\*\*File 516, D&B--Dun's Market Identifiers  
\*\*\*File 523, D&B European Dun's Market Identifiers  
\*\*\*File 531, American Business Directory  
\*\*\* MEDLINE has been reloaded with the 2006 MeSH (Files 154 & 155)  
\*\*\* The 2005 reload of the CLAIMS files (Files 340, 341, 942)  
is now available online.

\*\*\*

DATABASES REMOVED

\*\*\*File 196, FINDEX  
\*\*\*File 468, Public Opinion Online (POLL)

Chemical Structure Searching now available in Prous Science Drug Data Report (F452), Prous Science Drugs of the Future (F453), IMS R&D Focus (F445/955), Pharmaprojects (F128/928), Beilstein Facts (F390), Derwent Chemistry Resource (F355) and Index Chemicus (File 302).

\*\*\*

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Cost is in DialUnits

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Terminal set to DLINK

? sf all

>>>SELECT FILES not supported.

? b 411

18jul06 14:15:47	User291213	Session D65.1
\$0.83	0.237	DialUnits File1
\$0.83	Estimated cost	File1
\$0.14	TELNET	
\$0.97	Estimated cost	this search
\$0.97	Estimated total session cost	0.237 DialUnits

File 411:DIALINDEX(R)

DIALINDEX(R)  
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\*\*\* format unless you enter the SET DETAIL ON command. \*\*\*  
? sf all  
You have 562 files in your file list.  
(To see banners, use SHOW FILES command)  
? s au=((horwitz, M?) or (Horwitz M?)

Your SELECT statement is:  
s au=((horwitz, M?) or (Horwitz M?)

Items	File
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>>>Unmatched parentheses	
? s au=((horwitz, M?) or (Horwitz M?)	

Your SELECT statement is:  
s au=((horwitz, M?) or (Horwitz M?))

Items	File
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7	1: ERIC_1966-2006/June
7	2: INSPEC_1898-2006/Jul W2
476	5: Biosis Previews(R)_1969-2006/Jul W2
9	6: NTIS_1964-2006/Jul W2
44	7: Social SciSearch(R)_1972-2006/Jul W2
8	8: Ei Compendex(R)_1970-2006/Jul W2
19	10: AGRICOLA_70-2006/May
22	11: PsycINFO(R)_1887-2006/Apr W4
7	15: ABI/Inform(R)_1971-2006/Jul 18
1	16: Gale Group PRÖMT(R)_1990-2006/Jul 17
1	18: Gale Group F&S Index(R)_1988-2006/Jul 17
1	21: NCJRS_1972-2006/Jun
189	24: CSA Life Sciences Abstracts_1966-2006/May
329	34: SciSearch(R) Cited Ref Sci_1990-2006/Jul W2
10	35: Dissertation Abs Online_1861-2006/Jun
19	38: America:History & Life_1963-2005/Q3
3	47: Gale Group Magazine DB(TM)_1959-2006/Jul 14
22	50: CAB Abstracts_1972-2006/Jun
6	51: Food Sci.&Tech.Abs_1969-2006/Jul W3
5	53: FOODLINE(R): Science_1972-2006/Jul 18
1	61: Civil Engineering Abstracts._1966-2006/Jul
1	62: SPIN(R)_1975-2006/Apr W3
2	63: Transport Res(TRIS)_1970-2006/Jun
Examined	50 files
16	65: Inside Conferences_1993-2006/Jul 18
1	66: GPO Mon. Cat._1978-2006/Jul
170	71: ELSEVIER BIOBASE_1994-2006/Jul W3
321	73: EMBASE_1974-2006/Jul 18
39	88: Gale Group Business A.R.T.S._1976-2006/Jul 06
1	89: GeoRef_1785-2006/Jul B1
3	91: MANTIS(TM)_1880-2006/Jan
21	98: General Sci Abs_1984-2005/Jan
1	99: Wilson Appl. Sci & Tech Abs_1983-2006/Jun
7	103: Energy SciTec_1974-2006/May B2
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92	120: U.S. Copyrights_1978-2006/Jul 11
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3	136: BioEngineering Abstracts_1966-2006/May
45	137: Book Review Index_1969-2004/May
3	139: EconLit_1969-2006/Jul

5 141: Readers Guide\_1983-2006/Jun  
4 142: Social Sciences Abstracts\_1983-2006/Jun  
55 143: Biol. & Agric. Index\_1983-2006/Jun  
266 144: Pascal\_1973-2006/Jun W4  
4 148: Gale Group Trade & Industry DB\_1976-2006/Jul 14  
10 149: TGG Health&Wellness DB(SM)\_1976-2006/Jun W4  
37 150: Gale Group Legal Res Index(TM)\_1980-2006/Jul 13  
386 155: MEDLINE(R)\_1950-2006/Jul 17  
61 156: ToxFile\_1965-2006/Jul W2  
90 159: Cancerlit\_1975-2002/Oct  
44 162: Global Health\_1983-2006/Jun  
1 163: Ageline(R)\_1965-2006/Jun  
4 172: EMBASE Alert\_2006/Jul 18  
2 173: Adis Clinical Trials Insight\_2000-2006/Jul W1  
1 174: Pharm-line(R)\_1978-2002/Dec W3  
3 203: AGRIS\_1974-2006/Mar  
2 205: ONTAP(R) BIOSIS Previews(R)\_

Examined 150 files

3 211: Gale Group Newsearch(TM)\_2006/Jul 14  
1 240: PAPERCHEM\_1967-2006/Jul W3  
2 254: ONTAP(R) MEDLINE(R)\_2005  
10 266: FEDRIP\_2005/Dec  
1 272: ONTAP(R) EMBASE  
1 280: ONTAP Derwent World Patents Index

Examined 200 files

2 285: BioBusiness(R)\_1985-1998/Aug W1  
2 315: ChemEng & Biotec Abs\_1970-2006/Jun  
35 340: CLAIMS(R)/US Patent\_1950-06/Jul 13  
28 342: Derwent Patents Citation Indx\_1978-05/200643  
25 345: Inpadoc/Fam.& Legal Stat\_1968-2006/UD=200628  
1 347: JAPIO\_Dec 1976-2005/Dec(Updated 060404)  
15 348: EUROPEAN PATENTS\_1978-2006/ 200628  
17 349: PCT FULLTEXT\_1979-2006/UB=20060713,UT=20060706  
26 357: Derwent Biotech Res.\_1982-2006/Jul W2  
2 358: Current BioTech Abs\_1983-2006/Jan  
1 370: Science\_1996-1999/Jul W3  
9 373: Adis Clinical Trials Insight\_1982-June 2000  
12 376: Derwent Drug File\_1964-1982

Examined 250 files

43 377: Derwent Drug File\_1983-2006/Jun W3  
288 399: CA SEARCH(R)\_1967-2006/UD=14504  
117 420: UnCover\_1988-2001/May 31  
25 426: LCMARC-Books\_1968-2006/Jul W3  
5 430: British Books in Print\_2006/Jul W3  
125 434: SciSearch(R) Cited Ref\_Sci\_1974-1989/Dec  
2 436: Humanities Abs\_1984-2004/Dec  
3 437: Education Abstracts\_1983-2006/Jun  
1 438: Library Lit. & Info. Science\_1984-2006/Jun  
4 439: Arts&Humanities Search(R)\_1980-2006/Jul W2  
482 440: Current Contents Search(R)\_1990-2006/Jul 18  
1 444: New England Journal of Med.\_1985-2006/Jul W1

Examined 300 files

7 474: New York Times Abs\_1969-2006/Jul 17  
6 483: Newspaper Abs Daily\_1986-2006/Jul 13  
29 484: Periodical Abs Plustext\_1986-2006/Jul W2  
22 485: Accounting & Tax DB\_1971-2006/Jul W2

Examined 350 files

3 553: Wilson Bus. Abs.\_1982-2006/Jul

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NEWS 4 APR 04	STN AnaVist \$500 visualization usage credit offered
NEWS 5 MAY 10	CA/CAplus enhanced with 1900-1906 U.S. patent records
NEWS 6 MAY 11	KOREAPAT updates resume
NEWS 7 MAY 19	Derwent World Patents Index to be reloaded and enhanced
NEWS 8 MAY 30	IPC 8 Rolled-up Core codes added to CA/CAplus and USPATFULL/USPAT2
NEWS 9 MAY 30	The F-Term thesaurus is now available in CA/CAplus
NEWS 10 JUN 02	The first reclassification of IPC codes now complete in INPADOC
NEWS 11 JUN 26	TULSA/TULSA2 reloaded and enhanced with new search and display fields
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NEWS 15 JUL 14	FSTA enhanced with Japanese patents
NEWS EXPRESS	JUNE 30 CURRENT WINDOWS VERSION IS V8.01b, CURRENT MACINTOSH VERSION IS V6.0c(ENG) AND V6.0Jc(JP), AND CURRENT DISCOVER FILE IS DATED 26 JUNE 2006.
NEWS HOURS	STN Operating Hours Plus Help Desk Availability
NEWS LOGIN	Welcome Banner and News Items
NEWS IPC8	For general information regarding STN implementation of IPC 8
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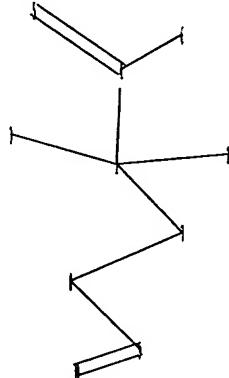
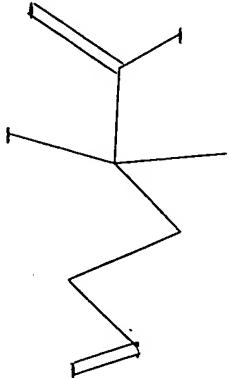
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 chain bonds :  
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 exact/norm bonds :  
 1-3 4-5 4-6 8-9 9-10  
 exact bonds :  
 1-2 1-4 1-7 7-8

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 10:CLASS

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L3 5 L2

=> DIS L3 1 SAM IBIB IABS  
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L3 ANSWER 1 OF 5 CAPLUS COPYRIGHT 2006 ACS on STN  
 CC 80-4 (Organic Analytical Chemistry)  
 TI Gas chromatographic separation of enantiomeric sulfur compounds on Chirasil-Val  
 ST sulfoxide enantiomer gas chromatog; sulfur compd enantiomer gas chromatog  
 IT Chromatography, gas  
     (for resolution of enantiomeric sulfur compds. on Chirasil-Val)  
 IT Resolution  
     (of sulfur compound enantiomers by gas chromatog. on Chirasil-Val)  
 IT Sulfoxides  
     RL: ANST (Analytical study)  
       (resolution of enantiomeric, gas chromatog.)  
 IT 4170-69-8 33577-16-1 95833-61-7 95833-62-8  
     RL: ANST (Analytical study); PROC (Process)  
       (resolution of, by gas chromatog. on Chirasil-Val)  
 IT 3226-66-2 7314-32-1 23631-84-7 34044-66-1 41486-92-4 50896-97-4  
   50896-98-5 80225-50-9 95833-63-9 95833-64-0 95833-65-1  
   95833-66-2 95833-67-3 95833-68-4 95833-69-5 95833-70-8  
   95833-71-9 95833-72-0 95833-73-1 95833-74-2  
     RL: ANST (Analytical study); PROC (Process)  
       (separation of, by gas chromatog. on Chirasil-Val)  
 ACCESSION NUMBER: 1985:178450 CAPLUS  
 DOCUMENT NUMBER: 102:178450  
 TITLE: Gas chromatographic separation of enantiomeric sulfur compounds on Chirasil-Val  
 AUTHOR(S): Bayer, Ernst; Kuesters, Ernst; Nicholson, Graeme J.; Frank, Hartmut  
 CORPORATE SOURCE: Inst. Org. Chem., Univ. Tuebingen, Tuebingen, D-7400/1, Fed. Rep. Ger.  
 SOURCE: Journal of Chromatography (1985), 320(2), 393-6  
 CODEN: JOCRAM; ISSN: 0021-9673  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 ABSTRACT:  
 The gas chromatog. separation of sulfoxide antipodes, including aliphatic sulfoxides, on quartz fused silica capillaries coated with the chiral silicone phase

Chirasil-Val is reported. The compds. were esterified before anal. A flame ionization detector and H carrier gas were used.

=> DIS L3 2 SAM IBIB IABS

THE ESTIMATED COST FOR THIS REQUEST IS 3.07 U.S. DOLLARS

DO YOU WANT TO CONTINUE WITH THIS REQUEST? (Y)/N:Y

L3 ANSWER 2 OF 5 CAPLUS COPYRIGHT 2006 ACS on STN  
 CC 34-2 (Synthesis of Amino Acids, Peptides, and Proteins)  
 Section cross-reference(s): 22  
 TI Chemical ionization mass spectra of L-methionine and L-methionine analogs  
 ST methionine analog mass spectra; sulfone methionine mass spectra; sulfoxide  
 methionine mass spectra; sulfoximine methionine mass spectra  
 IT Amino acids, properties  
 RL: PRP (Properties)  
 (mass spectra of methionine and its sulfone and sulfoxide and  
 sulfoximines)  
 IT Mass spectra  
 (chemical-ionization, of methionine and its analogs)  
 IT Molecular structure-property relationship  
 (mass spectra, of methionine and its sulfone and sulfoxide and  
 sulfoximines)  
 IT 63-68-3, properties 3226-65-1 7314-32-1 15985-39-4 78867-97-7  
 78867-98-8 78867-99-9 78868-00-5 78868-01-6 78868-02-7  
 RL: PRP (Properties)  
 (chemical ionization mass spectrum of)  
 ACCESSION NUMBER: 1981:515972 CAPLUS  
 DOCUMENT NUMBER: 95:115972  
 TITLE: Chemical ionization mass spectra of L-methionine and  
 L-methionine analogs  
 AUTHOR(S): Cooper, Arthur J. L.; Griffith, Owen W.; Meister,  
 Alton; Field, Frank H.  
 CORPORATE SOURCE: Med. Coll., Cornell Univ. Med. Coll., New York, NY,  
 10021, USA  
 SOURCE: Biomedical Mass Spectrometry (1981), 8(3), 95-8  
 CODEN: BMSYAL; ISSN: 0306-042X  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 ABSTRACT:  
 The chemical ionization mass spectra of L-methionine, L-methionine sulfone,  
 L-methionine (RS)-sulfoxide, L-methionine (RS)-sulfoximine, DL-ethionine  
 (RS)-sulfoximine, DL-prothionine (RS)-sulfoximine, DL-buthionine  
 (RS)-sulfoximine,  $\alpha$ -methyl-L-methionine (RS)-sulfoximine,  
 $\alpha$ -ethyl-DL-methionine were recorded. The observed fragmentation patterns  
 are discussed in relation to structural and chemical properties; the sulfoximines  
 show spectra unique among amino acids.

=> DIS L3 3 SAM IBIB IABS

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DO YOU WANT TO CONTINUE WITH THIS REQUEST? (Y)/N:Y

L3 ANSWER 3 OF 5 CAPLUS COPYRIGHT 2006 ACS on STN  
 CC 7-3 (Enzymes)  
 Section cross-reference(s): 13  
 TI Inhibitors of polyamine biosynthesis. 9. Effects of S-adenosyl-L-  
 methionine analogs on mammalian aminopropyltransferases in vitro and  
 polyamine biosynthesis in transformed lymphocytes  
 ST aminopropyltransferase interaction adenosylmethionine analog; synthase  
 spermine spermidine adenosylmethionine analog; decarboxylase inhibition

adenosylmethionine analog; DNA formation lymphocyte adenosylmethionine analog; polyamine lymphocyte adenosylmethionine analog  
 IT Lymphocyte  
     (DNA formation by and polyamine levels in, adenosylmethionine analog effect on)  
 IT Liver, composition  
     (adenosylmethionine decarboxylase of, adenosylmethionine analog inhibition of)  
 IT Deoxyribonucleic acids  
     RL: FORM (Formation, nonpreparative)  
         (formation of, by lymphocytes, adenosylmethionine analog effect on)  
 IT Prostate gland  
     (spermidine and spermine synthases of, adenosylmethionine analog interaction with)  
 IT Brain, composition  
     (spermine synthase of, adenosylmethionine analog interaction with)  
 IT Amines, biological studies  
     RL: BIOL (Biological study)  
         (poly-, of lymphocyte, adenosine methionine analog effect on)  
 IT 74812-43-4  
     RL: BIOL (Biological study)  
         (adenosylmethionine analog interaction with, of brain and prostate gland)  
 IT 37277-82-0  
     RL: BIOL (Biological study)  
         (adenosylmethionine analog interaction with, of prostate gland)  
 IT 9036-20-8  
     RL: PROC (Process)  
         (inhibition of, of liver, by adenosylmethionine analog)  
 IT 61102-32-7 72648-30-7 72648-32-9 72648-35-2 72648-37-4  
     76858-87-2 76858-88-3  
     RL: BIOL (Biological study)  
         (spermidine and spermine synthases interaction with)  
 ACCESSION NUMBER: 1981:170089 CAPLUS  
 DOCUMENT NUMBER: 94:170089  
 TITLE: Inhibitors of polyamine biosynthesis. 9. Effects of S-adenosyl-L-methionine analogs on mammalian aminopropyltransferases in vitro and polyamine biosynthesis in transformed lymphocytes  
 AUTHOR(S): Pankaskie, Marvin C.; Abdel-Monem, Mahmoud M.; Raina, Aarne; Wang, Tinchung; Foker, John E.  
 CORPORATE SOURCE: Dep. Med. Chem., Univ. Minnesota, Minneapolis, MN, 55455, USA  
 SOURCE: Journal of Medicinal Chemistry (1981), 24(5), 549-53  
 CODEN: JMCMAR; ISSN: 0022-2623  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 ABSTRACT:  
 Seven analogs of S-adenosyl-L-methionine were studied as inhibitors or substrates for mammalian spermidine synthase (SDS) and spermine synthase (SS). One of these, S-(5'-deoxy-5'-adenosyl)-(+)-1-methyl-3-(methylthio)propylamine (I), showed a unique spectrum of activities on the polyamine biosynthesis enzymes. It was an inhibitor of adenosylmethionine decarboxylase from rat liver and SS from bovine brain and rat ventral prostate. I was a substrate for the SDS from bovine brain and rat ventral prostate, but not a substrate for the SS from these same sources. At concns. of  $\geq 0.2$  mM, I blocked the increases in polyamine levels and in thymidine-<sup>3</sup>H incorporation induced by concanavalin A in cultured mouse lymphocytes. At approx. 0.5 mM concentration of I, the cellular polyamine levels and the rate of thymidine incorporation were similar to those of the unstimulated lymphocytes. Lower concns. of I (0.02-0.1 mM) produced a dose-dependent increase in thymidine incorporation. A dose-dependent decrease in the cellular polyamine levels was observed in the range of 0.05-0.5 mM of the inhibitor. Thus the

effects of I on transformed lymphocytes are complex and may not be solely due to the inhibition of polyamine biosynthesis by this compound

=> DIS L3 4 SAM IBIB IABS

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DO YOU WANT TO CONTINUE WITH THIS REQUEST? (Y)/N:Y

L3 ANSWER 4 OF 5 CAPLUS COPYRIGHT 2006 ACS on STN  
 CC 7-3 (Enzymes)  
 TI Inhibitors of polyamine biosynthesis. 8. Irreversible inhibition of mammalian S-adenosyl-L-methionine decarboxylase by substrate analogs  
 ST adenosylmethionine decarboxylase inhibitor substrate; adenosylmethionine analog enzyme inhibitor  
 IT Liver, composition  
     (adenosylmethionine decarboxylase of, adenosylmethionine analogs inhibition of)  
 IT Michaelis constant  
     (of adenosylmethionine decarboxylase)  
 IT Kinetics, enzymic  
     (of inhibition, of adenosylmethionine decarboxylase)  
 IT 72648-29-4  
     RL: RCT (Reactant); RACT (Reactant or reagent)  
     (acid hydrolysis of)  
 IT 72648-22-7  
     RL: RCT (Reactant); RACT (Reactant or reagent)  
     (hydrolysis of)  
 IT 9036-20-8  
     RL: PROC (Process)  
     (of liver, inhibition of, by adenosylmethionine analogs)  
 IT 19360-96-4P  
     RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
     (preparation and Bucherer-Lieb reaction of)  
 IT 61102-32-7P 72648-25-0P 72648-31-8P 72648-34-1P 72648-36-3P  
     72648-37-4P 72648-38-5P 72671-97-7P  
     RL: SPN (Synthetic preparation); PREP (Preparation)  
     (preparation and adenosylmethionine decarboxylase inhibiting activity of)  
 IT 72648-21-6P  
     RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
     (preparation and hydrolysis of)  
 IT 19361-15-0P  
     RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
     (preparation and reaction with isopropylidenesulfonyladenosine)  
 IT 72648-27-2P  
     RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
     (preparation and reaction with isopropylidenetoluenesulfonyladenosine)  
 IT 72648-26-1P  
     RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
     (preparation and reduction of)  
 IT 100-53-8  
     RL: RCT (Reactant); RACT (Reactant or reagent)  
     (reaction of, with Me vinyl ketone)  
 IT 29908-03-0  
     RL: RCT (Reactant); RACT (Reactant or reagent)  
     (reaction of, with adenosylmethionine decarboxylase, kinetics of)  
 IT 5605-63-0  
     RL: RCT (Reactant); RACT (Reactant or reagent)

(reaction of, with amino(benzylthio)methylbutanoic acid)  
 IT 78-94-4, reactions  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (reaction of, with benzylmercaptan)

IT 5135-30-8  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (reaction of, with methylalanenitrile)

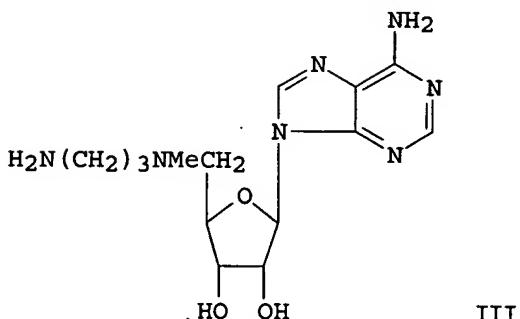
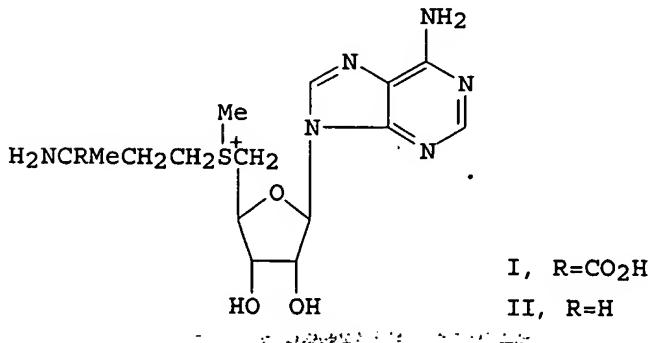
IT 693-05-0  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (reaction of, with toluenesulfonyladenosine)

ACCESSION NUMBER: 1980:71732 CAPLUS  
 DOCUMENT NUMBER: 92:71732  
 TITLE: Inhibitors of polyamine biosynthesis. 8.  
 Irreversible inhibition of mammalian  
 S-adenosyl-L-methionine decarboxylase by substrate  
 analogs

AUTHOR(S): Pankaskie, Marvin; Abdel-Monem, Mahmoud M.  
 CORPORATE SOURCE: Coll. Pharm., Univ. Minnesota, Minneapolis, MN, 55455,  
 USA

SOURCE: Journal of Medicinal Chemistry (1980), 23(2), 121-7  
 CODEN: JMCMAR; ISSN: 0022-2623

DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 GRAPHIC IMAGE:

**ABSTRACT:**

Several S-adenosyl-L-methionine analogs in which the sulfonium group and the substituents of the  $\alpha$ -C of the amino acid moiety were modified were synthesized and evaluated as inhibitors of S-adenosyl-L-methionine decarboxylase of rat liver. S-(5'-Deoxy-5'-adenosyl)- $(\pm)$ -2-methylmethionine dihydrogen sulfate (I), the propylamine analog (II), and N-(aminopropyl)-N-methyl-5'-amino-5'-deoxyadenosine-2HCl (III) were competitive inhibitors of the enzymic decarboxylation of S-adenosyl-L-methionine by the rat liver enzyme. I

and II formed azomethine bonds with an essential CO group in the enzyme active site, and both inhibitors also caused a concentration- and time-dependent inactivation

of the enzyme. III did not form an azomethine bond with and did not cause inactivation of the enzyme. Apparently, I and II have a binding mode to the enzyme active site different than that for III.

=> DIS L3 5 SAM IBIB IABS

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L3 ANSWER 5 OF 5 CAPLUS COPYRIGHT 2006 ACS on STN  
 IC C07C  
 CC 23-17 (Aliphatic Compounds)  
 Section cross-reference(s): 25, 27  
 TI Carboxylic acids  
 ST ester isocyano; arom ester isocyano; furanpropionate isocyano; addn isocyano ester alkene  
 IT Esters, preparation  
 RL: PREP (Preparation)  
 (isocyano)  
 IT Addition reaction  
 (of isocyano esters with vinylic compds.)  
 IT 78-94-4 94-41-7 102-96-5 107-13-1, reactions 126-98-7 3156-70-5  
 4360-47-8 4786-20-3 4812-23-1 5535-48-8 33972-66-6 33972-68-8  
 41409-84-1  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (addition reaction of, with isocyano alkanoates)

IT 2999-46-4 33140-27-1  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (addition reaction of, with vinyl compds.)  
 IT 38062-11-2P 38062-12-3P 38062-13-4P 38062-14-5P 38062-15-6P  
 38062-16-7P 38062-17-8P 38114-92-0P 41409-70-5P 41409-74-9P  
 41409-75-0P 41409-76-1P 41409-77-2P 41409-78-3P  
 41409-79-4P 41409-80-7P 41409-81-8P 41409-82-9P 41409-83-0P  
 41486-62-8P 41694-57-9P  
 RL: SPN (Synthetic preparation); PREP (Preparation)  
 (preparation of)

ACCESSION NUMBER: 1973:441967 CAPLUS  
 DOCUMENT NUMBER: 79:41967  
 TITLE: Carboxylic acids  
 INVENTOR(S): Schoellkipf, Ulrich; Stafforst, Diethard  
 PATENT ASSIGNEE(S): Badische Anilin- & Soda-Fabrik AG  
 SOURCE: Ger. Offen., 19 pp. Addn. to Ger. Offen. 2,043,666  
 (CA 75;129661u).  
 CODEN: GWXXBX  
 DOCUMENT TYPE: Patent  
 LANGUAGE: German  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 2147707	A1	19730329	DE 1971-2147707	19710924
PRIORITY APPLN. INFO.:			DE 1971-2147707	A 19710924

GRAPHIC IMAGE: For diagram(s), see printed CA Issue.

ABSTRACT:

Addition reaction of isocyanoesters CNCHR<sub>n</sub>CO<sub>2</sub>Et (R = H, Me) with acrylonitrile, vinyl sulfones, nitroalkanes, or vinyl ketones in presence of NaOMe, BuLi, or Na-EtOH gave other esters (mono- and diaddn. products). Thus, NCCHMeCO<sub>2</sub>Et (I) and PhCH:CHCN gave NCCH<sub>2</sub>CHPhC(NC)MeCO<sub>2</sub>Et; I with 2,5-dihydro-3-

(methylsulfonyl)furan gave II; and CNCH<sub>2</sub>CO<sub>2</sub>Et with PhCH:CHNO<sub>2</sub> gave (O<sub>2</sub>NCH<sub>2</sub>CHPh)<sub>2</sub>C(NC)CO<sub>2</sub>Et.

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DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)	SINCE FILE	TOTAL	
	ENTRY	SESSION	
CA SUBSCRIBER PRICE	0.00	-3.75	

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FILE COVERS 1907 - 18 Jul 2006 VOL 145 ISS 4  
 FILE LAST UPDATED: 17 Jul 2006 (20060717/ED)

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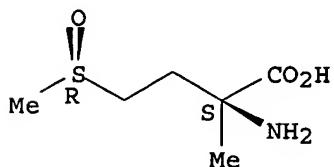
<http://www.cas.org/infopolicy.html>

=> DIS L3 1 HITSEQ

THE ESTIMATED COST FOR THIS REQUEST IS 7.05 U.S. DOLLARS  
 DO YOU WANT TO CONTINUE WITH THIS REQUEST? (Y)/N:Y

L3 ANSWER 1 OF 5 CAPLUS COPYRIGHT 2006 ACS on STN  
 IT 95833-63-9  
 RL: ANST (Analytical study); PROC (Process)  
 (separation of, by gas chromatog. on Chirasil-Val)  
 RN 95833-63-9 CAPLUS  
 CN L-Isovaline, 4-(methylsulfinyl)-, (R)- (9CI) (CA INDEX NAME)

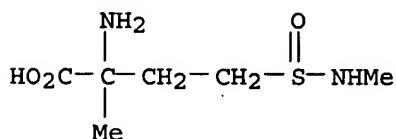
Absolute stereochemistry.



=> DIS L3 2 HITSEQ

THE ESTIMATED COST FOR THIS REQUEST IS 7.05 U.S. DOLLARS  
 DO YOU WANT TO CONTINUE WITH THIS REQUEST? (Y)/N:Y

L3 ANSWER 2 OF 5 CAPLUS COPYRIGHT 2006 ACS on STN  
 IT 78868-00-5  
 RL: PRP (Properties)  
 (chemical ionization mass spectrum of)  
 RN 78868-00-5 CAPLUS  
 CN Isovaline, 4-[(methylamino)sulfinyl]- (9CI) (CA INDEX NAME)



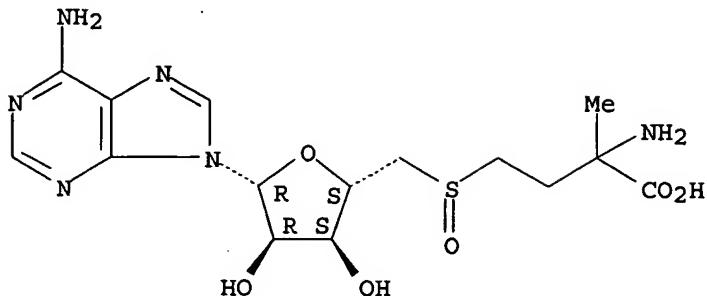
=> DIS L3 3 HITSEQ

THE ESTIMATED COST FOR THIS REQUEST IS 7.05 U.S. DOLLARS  
 DO YOU WANT TO CONTINUE WITH THIS REQUEST? (Y)/N:Y

L3 ANSWER 3 OF 5 CAPLUS COPYRIGHT 2006 ACS on STN  
 IT 72648-37-4  
 RL: BIOL (Biological study)  
 (spermidine and spermine synthases interaction with)  
 RN 72648-37-4 CAPLUS  
 CN Adenosine, 5'-(3-amino-3-carboxybutyl)sulfinyl]-5'-deoxy- (9CI) (CA

INDEX NAME)

Absolute stereochemistry.



=&gt; DIS L3 4 HITSEQ

THE ESTIMATED COST FOR THIS REQUEST IS 7.05 U.S. DOLLARS

DO YOU WANT TO CONTINUE WITH THIS REQUEST? (Y)/N:Y

L3 ANSWER 4 OF 5 CAPLUS COPYRIGHT 2006 ACS on STN

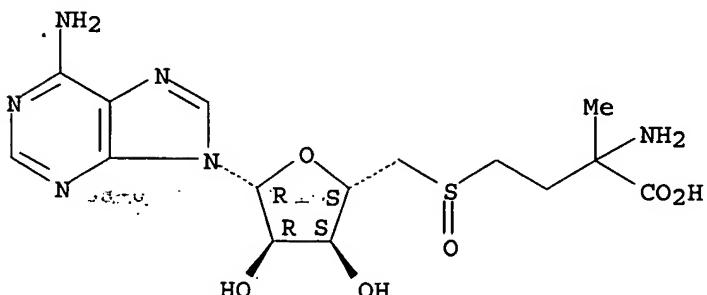
IT 72648-37-4P

RL: SPN (Synthetic preparation); PREP (Preparation)  
(preparation and adenosylmethionine decarboxylase inhibiting activity of)

RN 72648-37-4 CAPLUS

CN Adenosine, 5'-(3-amino-3-carboxybutyl)sulfinyl]-5'-deoxy- (9CI) (CA  
INDEX NAME)

Absolute stereochemistry.



=&gt; DIS L3 5 HITSEQ

THE ESTIMATED COST FOR THIS REQUEST IS 7.05 U.S. DOLLARS

DO YOU WANT TO CONTINUE WITH THIS REQUEST? (Y)/N:Y

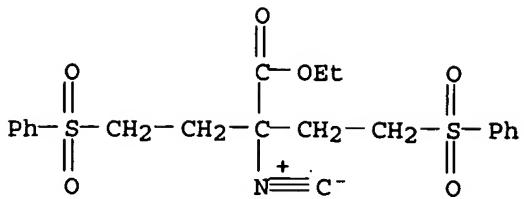
L3 ANSWER 5 OF 5 CAPLUS COPYRIGHT 2006 ACS on STN

IT 41409-75-0P

RL: SPN (Synthetic preparation); PREP (Preparation)  
(preparation of)

RN 41409-75-0 CAPLUS

CN Butanoic acid, 2-isocyano-4-(phenylsulfonyl)-2-[2-(phenylsulfonyl)ethyl]-,  
ethyl ester (9CI) (CA INDEX NAME)



=> FIL REGISTRY

COST IN U.S. DOLLARS

	SINCE FILE ENTRY	TOTAL SESSION
FULL ESTIMATED COST	12.77	32.77
DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)	SINCE FILE ENTRY	TOTAL SESSION
CA SUBSCRIBER PRICE	0.00	-3.75

FILE 'REGISTRY' ENTERED AT 09:33:35 ON 18 JUL 2006

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Property values tagged with IC are from the ZIC/VINITI data file provided by InfoChem.

STRUCTURE FILE UPDATES: 17 JUL 2006 HIGHEST RN 893880-40-5

DICTIONARY FILE UPDATES: 17 JUL 2006 HIGHEST RN 893880-40-5

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TSCA INFORMATION NOW CURRENT THROUGH January 6, 2006

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<http://www.cas.org/ONLINE/UG/regprops.html>

=> DIS L2 1- RN SAM

'SAM' IS NOT A VALID FORMAT FOR FILE 'REGISTRY'

The following are valid formats:

Substance information can be displayed by requesting individual fields or predefined formats. The predefined substance formats are: (RN = CAS Registry Number)

REG	- RN
SAM	- Index Name, MF, and structure - no RN
FIDE	- All substance data, except sequence data
IDE	- FIDE, but only 50 names
SQIDE	- IDE, plus sequence data
SQIDE3	- Same as SQIDE, but 3-letter amino acid codes are used
SQD	- Protein sequence data, includes RN
SQD3	- Same as SQD, but 3-letter amino acid codes are used

SQN - Protein sequence name information, includes RN

CALC - Table of calculated properties

EPROP - Table of experimental properties

PROP - EPROP and CALC

Any CA File format may be combined with any substance format to obtain CA references citing the substance. The substance formats must be cited first. The CA File predefined formats are:

ABS -- Abstract

APPS -- Application and Priority Information

BIB -- CA Accession Number, plus Bibliographic Data

CAN -- CA Accession Number

CBIB -- CA Accession Number, plus Bibliographic Data (compressed)

IND -- Index Data

IPC -- International Patent Classification

PATS -- PI, SO

STD -- BIB, IPC, and NCL

IABS -- ABS, indented, with text labels

IBIB -- BIB, indented, with text labels

ISTD -- STD format, indented

OBIB ----- AN, plus Bibliographic Data (original)

OIBIB ----- OBIB, indented with text labels

SBIB ----- BIB, no citations

SIBIB ----- IBIB, no citations

The ALL format gives FIDE BIB ABS IND RE, plus sequence data when it is available.

The MAX format is the same as ALL.

The IALL format is the same as ALL with BIB ABS and IND indented, with text labels.

For additional information, please consult the following help messages:

HELP DFIELDS -- To see a complete list of individual display fields.

HELP-FORMATS-- To see detailed descriptions of the predefined formats.  
ENTER DISPLAY FORMAT (IDE):END

=> DIS L2 1- RN SAM

'SAM' IS NOT A VALID FORMAT FOR FILE 'REGISTRY'

The following are valid formats:

Substance information can be displayed by requesting individual fields or predefined formats. The predefined substance formats are: (RN = CAS Registry Number)

REG - RN

SAM - Index Name, MF, and structure - no RN

FIDE - All substance data, except sequence data

IDE - FIDE, but only 50 names

SQIDE - IDE, plus sequence data

SQIDE3 - Same as SQIDE, but 3-letter amino acid codes are used

SQD - Protein sequence data, includes RN

SQD3 - Same as SQD, but 3-letter amino acid codes are used

SQN - Protein sequence name information, includes RN

CALC - Table of calculated properties

EPROP - Table of experimental properties  
 PROP - EPROP and CALC

Any CA File format may be combined with any substance format to obtain CA references citing the substance. The substance formats must be cited first. The CA File predefined formats are:

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 IPC -- International Patent Classification  
 PATS -- PI, SO  
 STD -- BIB, IPC, and NCL

IABS -- ABS, indented, with text labels  
 IBIB -- BIB, indented; with text labels  
 ISTD -- STD format, indented

OBIB ----- AN, plus Bibliographic Data (original)  
 OIBIB ----- OBIB, indented with text labels

SBIB ----- BIB, no citations  
 SIBIB ----- IBIB, no citations

The ALL format gives FIDE BIB ABS IND RE, plus sequence data when it is available.

The MAX format is the same as ALL.

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For additional information, please consult the following help messages:

HELP DFIELDS -- To see a complete list of individual display fields.  
 HELP FORMATS -- To see detailed descriptions of the predefined formats.  
 ENTER DISPLAY FORMAT (IDE):END

<b>=&gt; D COST</b>	<b>COST IN U.S. DOLLARS</b>		
	<b>SINCE FILE</b>	<b>TOTAL</b>	
	<b>ENTRY</b>	<b>SESSION</b>	
CONNECT CHARGES	0.76	5.37	
NETWORK CHARGES	0.12	1.08	
DISPLAY CHARGES	0.00	27.20	
<b>FULL ESTIMATED COST</b>	<b>0.88</b>	<b>33.65</b>	
<b>DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)</b>	<b>SINCE FILE</b>	<b>TOTAL</b>	
CA SUBSCRIBER PRICE	ENTRY	SESSION	
	0.00	-3.75	

IN FILE 'REGISTRY' AT 09:34:48 ON 18 JUL 2006

<b>=&gt; FIL STNGUIDE</b>	<b>COST IN U.S. DOLLARS</b>		
	<b>SINCE FILE</b>	<b>TOTAL</b>	
	<b>ENTRY</b>	<b>SESSION</b>	
FULL ESTIMATED COST	0.88	33.65	
<b>DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)</b>	<b>SINCE FILE</b>	<b>TOTAL</b>	
	ENTRY	SESSION	

229

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FILE CONTAINS CURRENT INFORMATION.  
LAST RELOADED: Jul 17, 2006 (20060717/UP).

=> logoff

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LOGOFF? (Y)/N/HOLD:y

COST IN U.S. DOLLARS

SINCE FILE ENTRY	TOTAL SESSION
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FULL ESTIMATED COST

0.06	33.71
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DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)

SINCE FILE ENTRY	TOTAL SESSION
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0.00	-3.75
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STN INTERNATIONAL LOGOFF AT 09:35:32 ON 18 JUL 2006